SERVICE MANUAL

Basic Care™ Bed

From Hill-Rom

Product No. P1440/P1441

For Parts or Technical Assistance
USA 1-812-934-1796 Canada (800) 267-2337
International: Contact your distributor.

man336

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Chapter 1 Introduction

Purpose

This manual contains instructions for the operation and maintenance of the Basic Care™ Bed. It also includes parts lists (in chapter 5) for ordering replacement components.

Audience

This manual is intended for use by only facility-authorized personnel. Ignoring this restriction can result in severe injury to people and serious damage to equipment.

Reference Documents

For more information (such as operating instructions, features, and product symbols), refer to the *Basic Care™ Bed User Manual* (usr124).

Document Symbols

This manual contains different typefaces and symbols designed to improve readability and increase understanding of its content:

- Standard text—used for regular data.
- **Boldface text**—emphasizes a word or phrase.
- **NOTE:**—sets apart special data or important instruction clarification.
- The symbol below shows a WARNING or CAUTION:

Figure 1-1. Warning and Caution

  - A WARNING identifies situations or actions that could affect patient or user safety. Disobeying a warning could result in patient or user injury.
  - A CAUTION points out special procedures or precautions that personnel must obey to avoid equipment damage.
- The symbol below identifies a CAUGHT HAZARD WARNING:

Figure 1-2. Caught Hazard Warning

- The symbol below identifies a CHEMICAL HAZARD WARNING:

Figure 1-3. Chemical Hazard Warning

- The symbol below identifies an ELECTRICAL SHOCK HAZARD WARNING:

Figure 1-4. Electrical Shock Hazard Warning

Specifications

Physical Description

Table 1-1. Physical Description

Feature	Dimension
Head section slope (maximum)	72.5° ±1°
Knee section slope (maximum)	25° ±1°
Sleep deck height range	18.3" to 30.1" ± 1" (46.5 cm to 76.5 cm ± 2.5 cm)
Trendelenburg position (maximum)	12° (+2°, -0°)
Reverse Trendelenburg position (maximum)	12° (+2°, -0°)
Bed lift capacity (maximum safe working load)	450 lb (204 kg)
Foot section lift capacity (maximum)	200 lb (91 kg)
Head section lift capacity (maximum)	200 lb (91 kg)
Maximum height of seat section (in Trendelenburg position)	23.5" (59.7 cm)
Siderail opening size	3.875" (9.843 cm)
Distance between siderails	11.375" (28.893 cm)
Length—with standard sleep deck	89" to 91" (226 cm to 231 cm)
Length—with short sleep deck	86" to 88" (218 cm to 224 cm)
Sleep deck length—standard model	79" to 81" (201 cm to 206 cm)
Sleep deck length—short model	76" to 78" (193 cm to 198 cm)
Maximum width—with siderails raised	43.7" ± 0.8" (110.9 cm ± 2.0 cm)
Minimum width—with siderail stored	36.6" ± 0.8" (93.0 cm ± 2.0 cm)
Sleep deck width	36.25" ± 0.5 (92.08 cm ± 1.3 cm)
Maximum headboard height	44" (112 cm)
Minimum underbed clearance	5.5" (13.9 cm)
Wheel base	61" (155 cm)
Caster size	5" (13 cm)
Total weight	310 lb (141 kg)

Table 1-2. Recommended Mattress Dimensions

Feature	Dimension
Mattress width	36" to 37" (91 cm to 94 cm)
Mattress length—standard model	80" to 81" (203 cm to 206 cm)
Mattress length—short model	76" to 77" (193 cm to 196 cm)
Mattress thickness	6" to 7" (15 cm to 18 cm)

Table 1-3. Environmental Conditions for Transport and Storage

Condition	Range
Temperature	-40°F to 158°F (-40°C to 70°C)
Relative humidity (RH)	10% to 95%
Atmospheric pressure	500 hPa to 1060 hPa

Table 1-4. Environmental Conditions for Use

Condition	Range
Temperature	50°F to 104°F (10°C to 40°C) ambient temperature
Relative humidity (RH)	30% to 95%, non-condensing
Atmospheric pressure	700 hPa to 1060 hPa

Electrical Description

Table 1-5. Electrical Description

Condition	Range
Rated voltage	100 V AC 110 V AC to 115 V AC 120 V AC to 127 V AC 220 V AC to 230 V AC 240 V AC
Power/Input	100 V AC to 127 V AC—1.0 A 220 V AC to 240 V AC—0.5 A
Frequency	50/60 Hz

Table 1-6. Battery Specifications

Condition	Range
Maximum battery life, with no functions operated and with the bed disconnected from its power source	24 hours
Time necessary to recharge a fully discharged battery	8 hours
Battery fuse	15A
Maximum hilow cycles with fully charged battery:	
With 0 lb (0 kg) on bed	21
With 250 lb (113 kg) on bed	15
With 450 lb (204 kg) on bed	11

Regulations, Standards, and Codes

Table 1-7. Regulations, Standards, and Codes

Classification	Standard
Technical and Quality Assurance Standards	UL 60601-1 CSA®[a] C22.2 No. 601.1 EN 60601-2-38, including amendment 1 EN 60601-1 IEC 60601-1-2 EN ISO 9002
Equipment classification per EN 60601-1	Class I equipment, internally powered equipment
Degree of protection against electric shock	Type B
Classification according to Directive 93/42/EEC	Class I
Degree of protection against the presence of flammable anaesthetic mixtures	Not for use with flammable anaesthetics.
IPX classification	IPX 4—According to IEC 60529, rating for protection against fluid ingress and identified as equipment that is protected against unpressurized spraying and splashing water.

a. CSA® is a registered trademark of Canadian Standards Association, Inc.

Table 1-8. Guidance and Manufacturer's Declaration—Electromagnetic Emissions

The Basic Care™ Bed is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should make sure that it is used in such an environment.		
Emissions Test	**Compliance**	**Electromagnetic Environment—Guidance**
RF Emissions CISPR 11	Group 1	The Basic Care™ Bed uses RF energy only for its internal functions. Therefore, its RF emissions are low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The Basic Care™ Bed is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Not applicable	
Voltage Fluctuations/ Flicker Emissions IEC 61000-3-3	Not applicable	

Table 1-9. Guidance and Manufacturer's Declaration—Electromagnetic Immunity

The Basic Care™ Bed is intended for use in the electromagnetic environment specified below. The customer or the user of the bed should make sure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment—Guidance**
Electrostatic Discharge (ESD) IEC 61000-4-2	± 6 kV Contact ± 8 kV Air	± 6 kV Contact ± 8 kV Air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment—Guidance
Radiated RF IEC 61000-4-3	3 Vrms 80 MHz to 2.5 GHz	3 Vrms 80 MHz to 2.5 GHz	Portable and mobile RF communications equipment should not be used at close distances to the Basic Care™ Bed. (See Note 2.)
Electrical Fast Transient/Burst IEC 61000-4-4	± 2 kV on Power Supply Lines ± 1 kV on Input/ Output Lines	± 2 kV on Power Supply Lines ± 1 kV on Input/ Output Lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV Differential Mode ± 2 kV Common Mode	± 1 kV Differential Mode ± 2 kV Common Mode	Mains power quality should be that of a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 10 Vrms from 80 MHz to 2.5 GHz	3 Vrms 150 kHz to 80 MHz 10 Vrms from 80 MHz to 2.5 GHz	Portable and mobile RF communications equipment (cell phones) should not be used at close distances to the Basic Care™ Bed. (See Note 2.)
Power Frequency Magnetic Fields IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment—Guidance**
Voltage Dips, Short Interrupts, & Variations On Power Supply Lines IEC 61000-4-11	< 5% U_T (95% dip in U_T for 0.5 cycles) < 40% U_T (60% dip in U_T for 5 cycles) < 70% U_T (30% dip in U_T for 25 cycles) < 5% U_T (95% dip in U_T for 5 seconds) (See note 1.)	< 5% U_T (95% dip in U_T for 0.5 cycles) < 40% U_T (60% dip in U_T for 5 cycles) < 70% U_T (30% dip in U_T for 25 cycles) < 5% U_T (95% dip in U_T for 5 seconds)	Mains power quality should be that of a typical commercial or hospital environment. If operation is necessary during an extended power outage or interruption, the Basic Care™ Bed should be switched to operate from the backup battery.
Note 1: U_T is the AC mains voltage prior to application of the test level.			
Note 2: The compliance levels in the ISM frequency range 150 kHz to 2.5 GHz are intended to decrease the likelihood that mobile/portable communications equipment could cause interference if it is inadvertently brought into the patient area. However, Emission limits, IEC 60601 Test Levels, and tests specified in IEC 60601-1-2:2001 do not address Electromagnetic Compatibility of electrical equipment at very close distances. Care should always be exercised when using any electrical or RF equipment in the immediate patient area.			

Model Identification

Table 1-10. Model Identification

Model Number	Description
P1440	Basic Care™ Bed—electric model
P1441	Basic Care™ Bed—manual model

Safety Tips

To help prevent the risk of hospital bed fires, make sure facility personnel follow the safety tips in the *FDA Public Health Notification: Safety Tips for Preventing Hospital Bed Fires.*

WARNING:
Evaluate patients for entrapment risk according to facility protocol, and monitor patients appropriately.

WARNING:
Evaluate patients for entrapment risk according to facility protocol, and monitor patients appropriately. Ensure that all siderails are fully latched when in the raised position. Failure to do either of these could result in serious injury or death.

NOTE:
Siderails are intended to be a reminder to the patient of the unit's edges, not a patient-restraining device.When appropriate, Hill-Rom recommends that medical personnel determine the proper methods necessary to ensure a patient remains safely in bed.

WARNING:
Make sure the bed is in the low position when the patient is unattended. This may reduce the severity of any resultant injuries from patient falls.

WARNING:
Always set the brakes when the unit is occupied, except during patient transport. Reconfirm before any patient transfer. Failure to do so may result in personal injury or equipment damage.

WARNING:
Deactivate the bed functions by using the lockout control. Movement of a patient or inadvertent activation of the bed functions by untrained individuals could result in personal injury.

WARNING:
Do not work under an unsupported load. Install appropriate temporary supports. Failure to do so could result in personal injury or equipment damage.

WARNING:
Put caster blocks behind the casters at the opposite end of the bed. Failure to do so could result in personal injury.

WARNING:
Only facility-authorized personnel should service the Basic Care™ Bed. Servicing by unauthorized personnel could result in personal injury or equipment damage.

WARNING:
Obey the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

WARNING:
Powered bed mechanisms can cause serious injury. Operate the bed only with persons clear of mechanisms.

WARNING:
Remove the patient from the bed before doing this procedure. Failure to do so could result in personal injury or equipment not operating correctly.

WARNING:
Wear eye protection. Failure to do so may result in eye injury.

WARNING:
Improper use or handling of the power cord may result in damage to the power cord. If damage has occurred to the power cord or any of its components, immediately remove the unit from service, and contact the appropriate maintenance personnel. Failure to do so could result in electrical shock or other personal injury or equipment damage.

WARNING:
Fluid spills onto the bed electronics can result in a hazard. If such a spill occurs, unplug the bed, and remove it from service. Failure to do so could result in personal injury or equipment damage.

WARNING:
Adhere to appropriate infection control policies and procedures. Failure to do so could result in the spread of infection.

WARNING:
Failure to install the IV pole correctly could allow it to fall, resulting in personal injury or equipment damage.

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

SHOCK HAZARD:
Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

SHOCK HAZARD:
The potential for electrical shock exists with electrical equipment. Failure to follow facility protocols may result in death or serious personal injury.

CAUTION:
Make sure that a flat side of the hex rod is facing upward when it is installed. Failure to do so may result in the central brake and steer not operating correctly.

CAUTION:
Use care when removing indicator caps. Failure to do so could damage the indicator cap.

CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

CAUTION:
Do not use harsh cleansers/disinfectants such as scouring pads, heavy duty grease removers, solvents such as toluene, xylene, or acetone. Equipment damage could occur.

CAUTION:
Do not use silicone-based lubricants. Equipment damage could occur.

CAUTION:
Put the removed P.C. boards in antistatic protective bags for shipping and storage. Equipment damage can occur.

CAUTION:
Make sure that your hands are clean, and **only** handle the P.C. boards by their edges to prevent component damage.

CAUTION:
Wear an antistatic strap when handling electronic components. Failure to do so could result in component damage.

CAUTION:
Before transporting the unit, ensure that the power cord, hoses, and other equipment are properly stowed. Failure to do so could result in equipment damage.

CAUTION:
Do not push or pull the unit by IV poles, siderails, or other equipment. Use the transport handles, footboard, or other designated location. Failure to do so can result in equipment damage.

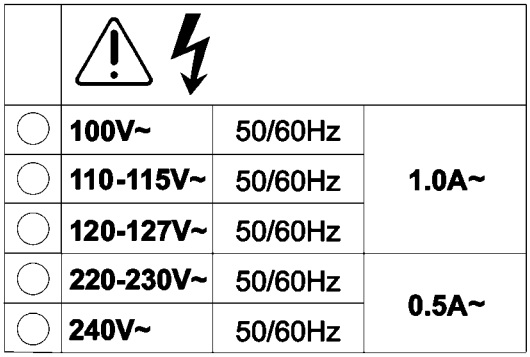
CAUTION:
Do not lower the bed frame while the trapeze support assembly is attached to the bed. Turn off the hilow function using the lockout on the foot end control panel. Otherwise, equipment damage could occur.

CAUTION:
Connect the cables to the correct socket. Failure to do so may cause the equipment to operate incorrectly.

CAUTION:
Dispose of batteries according to your local regulations. Failure to dispose of batteries correctly may damage the environment.

Warning and Caution Labels

Figure 1-5. Warning and Caution Labels



◯	**100V~**	50/60Hz	**1.0A~**
◯	**110-115V~**	50/60Hz	
◯	**120-127V~**	50/60Hz	
◯	**220-230V~**	50/60Hz	**0.5A~**
◯	**240V~**	50/60Hz	

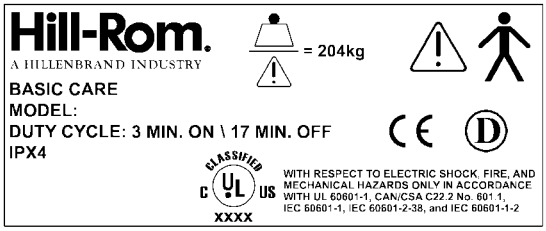

Hill-Rom.
A HILLENBRAND INDUSTRY
= 204kg
BASIC CARE
MODEL:
DUTY CYCLE: 3 MIN. ON \ 17 MIN. OFF
IPX4
CLASSIFIED
C UL US
XXXX
WITH RESPECT TO ELECTRIC SHOCK, FIRE, AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1, CAN/CSA C22.2 No. 601.1, IEC 60601-1, IEC 60601-2-38, and IEC 60601-1-2

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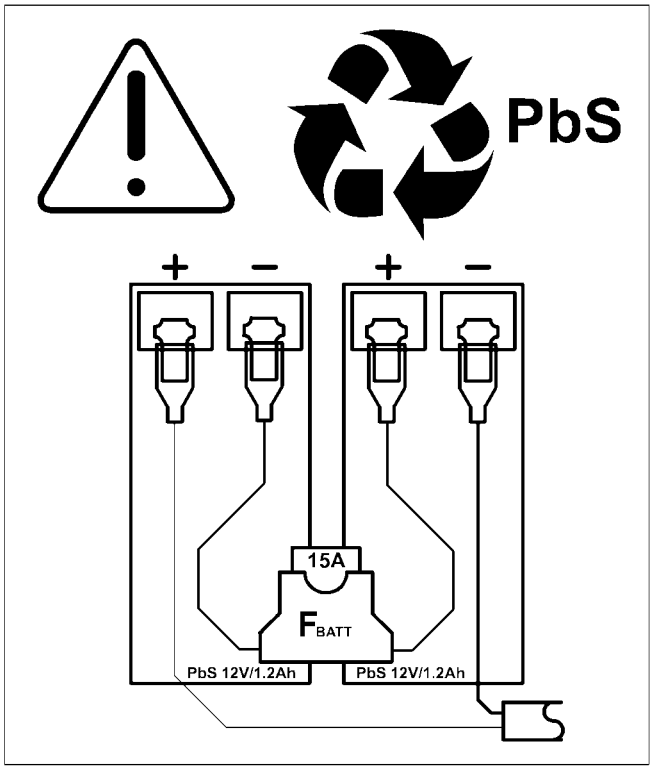
Figure 1-6. Battery Backup Wiring Diagram



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Chapter 2
Troubleshooting Procedures

2

Getting Started

WARNING:
Only facility-authorized personnel should service the Basic Care™ Bed. Servicing by unauthorized personnel could result in personal injury or equipment damage.

Begin each procedure in this chapter with step 1. Follow the sequence outlined (each step assumes the previous step has been completed). In each step, the normal operation of the product can be made by answering **Yes** or **No** to the statement. Your response will lead to another step in the procedure, a repair analysis procedure (RAP), or a component replacement. If more than one component is listed, replace them in the order given.

To begin gathering data about the problem, start with **Initial Actions**.

Do the **Function Checks** to isolate or identify a problem and to make sure the repair (replacing or adjusting a part, seating a connector, etc.) corrected the problem.

Do the **Final Actions** after the Function Checks to make sure the repair corrected the problem.

If troubleshooting procedures do not isolate the problem, call Hill-Rom Technical Support at 1-812-934-1796.

Initial Actions

Use Initial Actions to gather data from operators about problems with the Basic Care™ Bed. Note symptoms or other data about the problem that the operator describes. This data helps identify the most possible cause.

1. Someone who can explain the problem is available.

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-2.

2. Ask that person to demonstrate or explain the problem. The problem can be demonstrated.

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-2.

3. The problem is a result of incorrect operator action.

   Yes **No**
   ↓ → Go to "Function Checks" on page 2-2.

4. Instruct the operator to refer to the *Basic Care™ Bed User Manual* (usr124). To make sure the Basic Care™ Bed is operating correctly, do the "Function Checks" on page 2-2.

Function Checks

1. Initial Actions have been done.

   Yes **No**
   ↓ → Go to "Initial Actions" on page 2-2.

2. The bed is connected to the correct power source.

   Yes **No**
   ↓ → Connect the bed to the correct power source. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 3.

3. Test all of the bed functions for up and down operation. All of the up and down bed functions operate correctly.

   Yes **No**
   ↓ → Make sure the lockouts for all of the bed functions are not locked out. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 4.

4. Press the **Head Up** switch. The head section rises.

   Yes **No**
   ↓ → Go to page 2-6.

5. Press the **Head Down** switch. The head section lowers.

   Yes **No**
   ↓ → Go to page 2-8.

6. Press the **Knee Up** switch. The knee section rises.

   Yes **No**
   ↓ → Go to page 2-11.

7. Press the **Knee Down** switch. The knee section lowers.

   Yes **No**
   ↓ → Go to page 2-13.

8. Press the **Hilow Up** switch. The bed rises.

   Yes **No**
   ↓ → Go to page 2-16.

9. Press the **Hilow Down** switch. The bed lowers.

   Yes **No**
   ↓ → Go to page 2-18.

10. Raise the bed to the high position. Pull the *Trendelenburg* handle, and press the **Hilow Down** switch. The bed goes into the Trendelenburg position.

    Yes **No**
    ↓ → Go to page 2-23.

11. When the bed is in the high position, operate the *Reverse Trendelenburg* handle, and press the **Hilow Down** switch. The bed goes into the Reverse Trendelenburg position.

    Yes **No**
    ↓ → Go to page 2-23.

12. Raise the head section, operate the CPR controls. The head section lowers completely.

    Yes **No**
    ↓ → Go to page 2-25.

13. If the bed has central brake and steer, put the pedal into the steer position. The steer caster locks, and all of the other casters swivel freely.

Yes **No**
↓ → Replace the brake and steer caster (refer to procedure 4.23 on page 4-52).

14. If the bed has central brake and steer, put the pedal into the brake position. Try to move the bed out of its position. The bed does not move.

    Yes **No**
    ↓ → Replace the brake caster (refer to procedure 4.23 on page 4-52).

15. If the bed has individual brake and steer casters, press the brakes on each caster having that function. Try to move the bed out of its position. The bed does not move.

    Yes **No**
    ↓ → Replace the casters that are not operating correctly (refer to procedure 4.25 on page 4-59).

16. If the bed has individual brake and steer casters, press the steer on the caster having that function. The steer caster locks and all other casters swivel freely.

    Yes **No**
    ↓ → Replace the steer caster (refer to procedure 4.25 on page 4-59).

17. Call Hill-Rom Technical Support at 1-812-934-1796.

Final Actions

1. Complete the necessary preventive maintenance procedures. See “Preventive Maintenance Checklist” on page 3-7.

2. Complete all of the necessary administration tasks.

2.1 None of the Bed Functions Operate

1. All of the bed function lockouts are off.

NOTE:
If the indicator for a bed function lockout is on, the function is locked out.

Yes ↓ **No** → Turn the bed function lockouts off. If this corrects the problem, go to "Final Actions" on page 2-4.

2. Disconnect the bed from its power source and allow the bed to cool for 20 minutes. Connect the bed to its power source. The bed functions do not operate.

Yes ↓ **No** → Go to "Final Actions" on page 2-4.

3. The power cord is tightly seated in the connector on the control box.

Yes ↓ **No** → Tightly seat the power cord into its connector on the control box. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 4.

4. All of the control connectors are tightly seated in the control box.

Yes ↓ **No** → Tightly seat the control connectors in the control box. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 5.

5. Check the fuses in the control box at the head end of the bed. The fuses are good.

Yes ↓ **No** → Replace the fuses. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 6.

6. Replace the control box. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

2.2 The Head Up Function Does Not Operate

1. The head up function does not operate when the head up switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The head function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the head function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the head motor into its socket on the control box. The head up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the head motor. The head up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The head up function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The head up function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls on the siderail with the faulty function. The head up function operates from this siderail.

   Yes **No**
   ↓ → Replace the siderail with the faulty function. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.3 The Head Down Function Does Not Operate

1. The head down function does not operate when the head down switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The head function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the head function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the head motor into its socket on the control box. The head down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the head motor. The head down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The head down function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The head down function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls having the head down function that does not operate. The head down function operates from this siderail.

   Yes **No**
   ↓ → Replace the siderail with the faulty function. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.4 The Head Function Does Not Operate

1. The head function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the head function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

2. Disconnect the bed from its power source and allow the bed to cool for 20 minutes. Connect the bed to its power source. The head function does not operate.

Yes **No**
↓ → Go to “Final Actions” on page 2-4.

3. Call Hill-Rom Technical Support at 1-812-934-1796.

2.5 The Knee Up Function Does Not Operate

1. The knee up function does not operate when the knee up switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The knee function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the knee function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the knee motor into its socket on the control box. The knee up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the knee motor. The knee up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The knee up function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The knee up function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls on the siderail having the knee up function that does not operate. The knee up function operates from this siderail.

   Yes **No**
   ↓ → Replace the siderail having the knee up function that does not operate. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.6 The Knee Down Function Does Not Operate

1. The knee down function does not operate when the knee down switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The knee function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the knee function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the knee motor into its socket on the control box. The knee down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the knee motor. The knee down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The knee down function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The knee down function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls on the siderail having the knee down function that does not operate. The knee down function operates from this siderail.

   Yes **No**
   ↓ → Replace the siderail having the knee down function that does not operate. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.7 The Knee Function Does Not Operate

1. The knee function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the knee function lockout off. If this corrects the problem, go to "Final Actions" on page 2-4.

2. Disconnect the bed from its power source and allow the bed to cool for 20 minutes. Connect the bed to its power source. The knee function does not operate.

Yes **No**
↓ → Go to "Final Actions" on page 2-4.

3. Call Hill-Rom Technical Support at 1-812-934-1796.

2.8 The Hilow Up Function Does Not Operate

1. The hilow up function does not operate when the hilow switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The hilow function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the hilow function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the hilow motor into its socket on the control box. The hilow up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the hilow motor. The hilow up function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The hilow up function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The hilow up function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls on the siderail having the hilow up function that does not operate. The hilow up function operates from this siderail.

   Yes **No**
   ↓ → Replace the siderail having the hilow up function that does not operate. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.9 The Hilow Down Function Does Not Operate

1. The hilow down function does not operate when the hilow down switch is pressed from either the left siderail or the right siderail or from the foot end control panel.

   Yes **No**
   ↓ → Go to step 6.

2. The hilow function lockout is off.

   NOTE:
   If the LED for a bed function lockout is on, the function is locked out.

   Yes **No**
   ↓ → Turn the hilow function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Tightly seat the connector for the hilow motor into its socket on the control box. The hilow down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

4. Replace the hilow motor. The hilow down function does not operate.

   Yes **No**
   ↓ → Go to “Final Actions” on page 2-4.

5. Call Hill-Rom Technical Support at 1-812-934-1796.

6. The hilow down function operates from the foot end control panel.

   Yes **No**
   ↓ → Replace the foot end control panel. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

7. The hilow down function only operates from one of the siderails.

   Yes **No**
   ↓ → Tightly seat both of the siderail connectors into their sockets on the control box. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

8. Replace the controls on the siderail having the hilow down function that does not operate. The hilow down function operates from this siderail.

   Yes **No**

   ↓ → Replace the siderail having the hilow down function that does not operate. If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

9. Go to "Final Actions" on page 2-4.

2.10 The Hilow Function Does Not Operate

1. The hilow function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the hilow function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

2. Disconnect the bed from its power source and allow the bed to cool for 20 minutes. Connect the bed to its power source. The hilow function does not operate.

Yes **No**
↓ → Go to “Final Actions” on page 2-4.

3. Call Hill-Rom Technical Support at 1-812-934-1796.

2.11 The Automatic Contour Up Function Does Not Operate

1. The head section does not rise when the control for the auto contour up is pressed.

   Yes **No**
   ↓ → Go to step 4.

2. The head function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

   Yes **No**
   ↓ → Turn the head function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Do the procedure on page 2-6. The head section rises when the control for the auto contour up is pressed.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at 1-812-934-1796.

4. The knee section does not rise when the automatic contour up switch is pressed.

   Yes **No**
   ↓ → Turn the knee function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise go to step 5.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

5. Do the procedure on page 2-11. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

2.12 The Automatic Contour Down Function Does Not Operate

1. The head section does not lower when the control for the auto contour down is pressed.

   Yes **No**
   ↓ → Go to step 4.

2. The head function lockout is off.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

Yes **No**
↓ → Turn the head function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4.

3. Do the procedure on page 2-8. The head section lowers when the control for the auto contour down is pressed.

   Yes **No**
   ↓ → Call Hill-Rom Technical Support at 1-812-934-1796.

4. The knee section does not lower when the automatic contour down switch is pressed.

   Yes **No**
   ↓ → Turn the knee function lockout off. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise go to step 5.

NOTE:
If the LED for a bed function lockout is on, the function is locked out.

5. Do the procedure on page 2-13. If this corrects the problem, go to “Final Actions” on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

2.13 The Trendelenburg or Reverse Trendelenburg Function Does Not Operate

When putting the bed into Trendelenburg or Reverse Trendelenburg the bed lowers completely but does not go into Trendelenburg or Reverse Trendelenburg.

1. Visually inspect the Trendelenburg or Reverse Trendelenburg handles (A) (see figure 2-1 on page 2-24). The Trendelenburg or Reverse Trendelenburg handles (A) are connected and not broken.

   Yes **No**
   ↓ → Replace the Trendelenburg box assembly (B) (refer to procedure 4.3 on page 4-7). If this corrects the problem go to "Final Actions" on page 2-4.

2. Visually inspect the Trendelenburg or Reverse Trendelenburg rods (C). The Trendelenburg or Reverse Trendelenburg rods (C) are not bent.

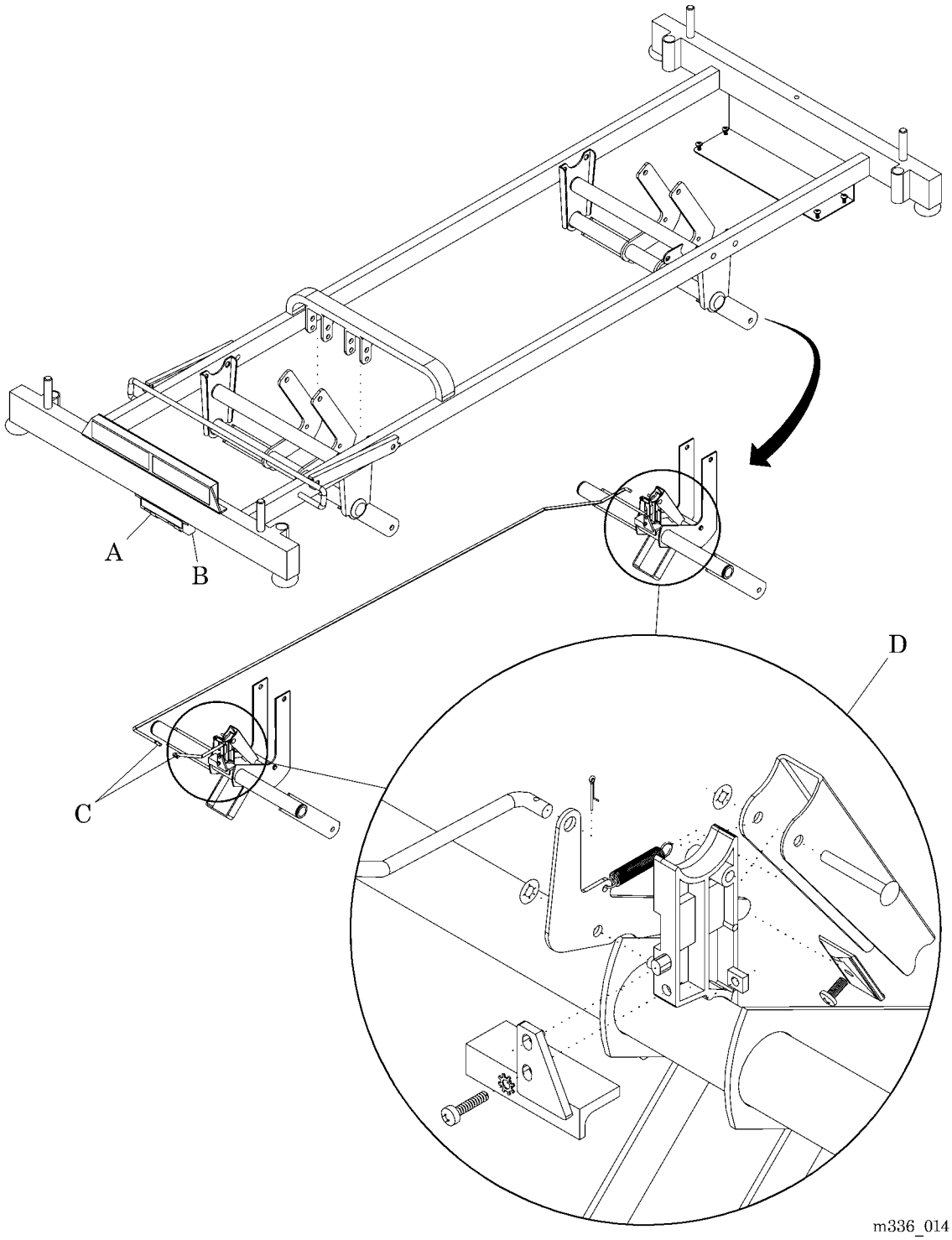
   Yes **No**
   ↓ → Straighten or replace the Trendelenburg or Reverse Trendelenburg rods (C) as necessary (refer to procedure 4.4 on page 4-9). If this corrects the problem go to "Final Actions" on page 2-4.

3. Visually inspect the Trendelenburg or Reverse Trendelenburg mechanisms (D). The Trendelenburg or Reverse Trendelenburg mechanisms (D) are connected and not broken.

   Yes **No**
   ↓ → Connect or replace the Trendelenburg or Reverse Trendelenburg mechanisms (D) as necessary (refer to procedure 4.4 on page 4-9). If this corrects the problem go to "Final Actions" on page 2-4.

4. Call Hill-Rom Technical Support at 1-812-934-1796.

Figure 2-1. Trendelenburg and Reverse Trendelenburg Assemblies



2.14 The CPR Function Does Not Operate

1. The CPR cable (A) is connected to the CPR handle (B) (see figure 2-2 on page 2-26)

   Yes ↓ **No** → Connect the CPR cable (A) to the CPR handle (B). If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 2.

2. The CPR wire (C) is held tightly in the bracket (D).

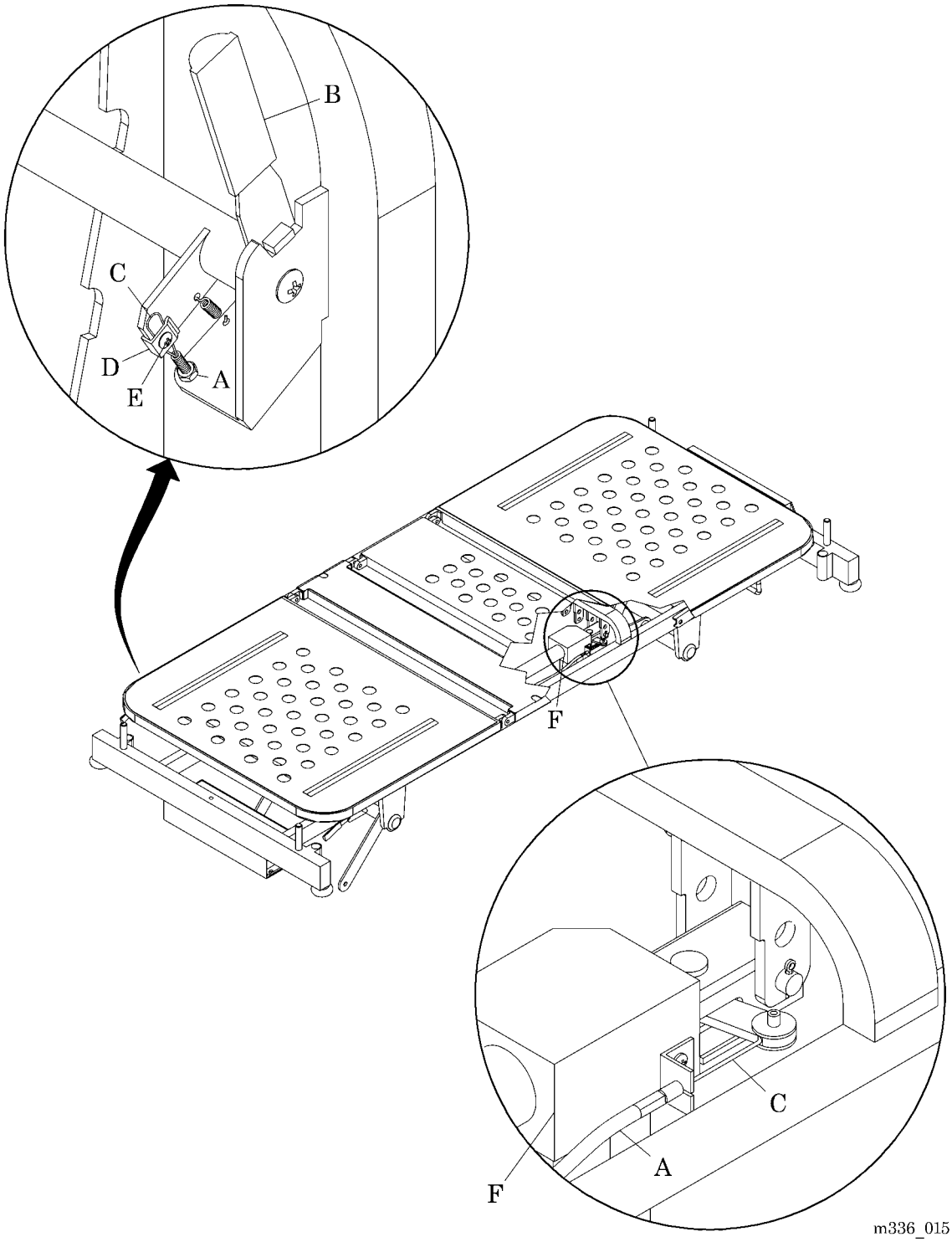
   Yes ↓ **No** → Tighten the screw (E) that attaches the CPR wire (C) under the bracket (D). If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 3.

3. The CPR cable (A) and CPR wire (C) are connected to the head motor (F).

   Yes ↓ **No** → Attach the CPR cable (A) and/or the CPR wire (C) to the head motor (F). If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, go to step 4.

4. Replace the head motor (F). If this corrects the problem, go to "Final Actions" on page 2-4. Otherwise, call Hill-Rom Technical Support at 1-812-934-1796.

Figure 2-2. CPR Control Assembly



Chapter 3
Theory of Operation

Introduction

The main components and controls for the Basic Care™ Bed are discussed in this section.

Base

The base supports the entire Basic Care™ Bed, included in this module are the casters, the optional brake and steer assembly, and the lift arms.

Intermediate Frame

The intermediate frame connects the base to the sleep deck, and provides attachment points for the drive motors that provide the motion of the different bed sections.

Articulating Sleep Deck

The articulating sleep deck contains the head, seat, knee, and foot sections. These sections, except for the seat section, articulate in a manner that changes the angular orientation of the section to the intermediate frame.

Siderails

There are two siderails on each side of the Basic Care™ Bed. The siderails raise and lower. When lowered, the siderails tuck below the sleep deck.

Motion Control

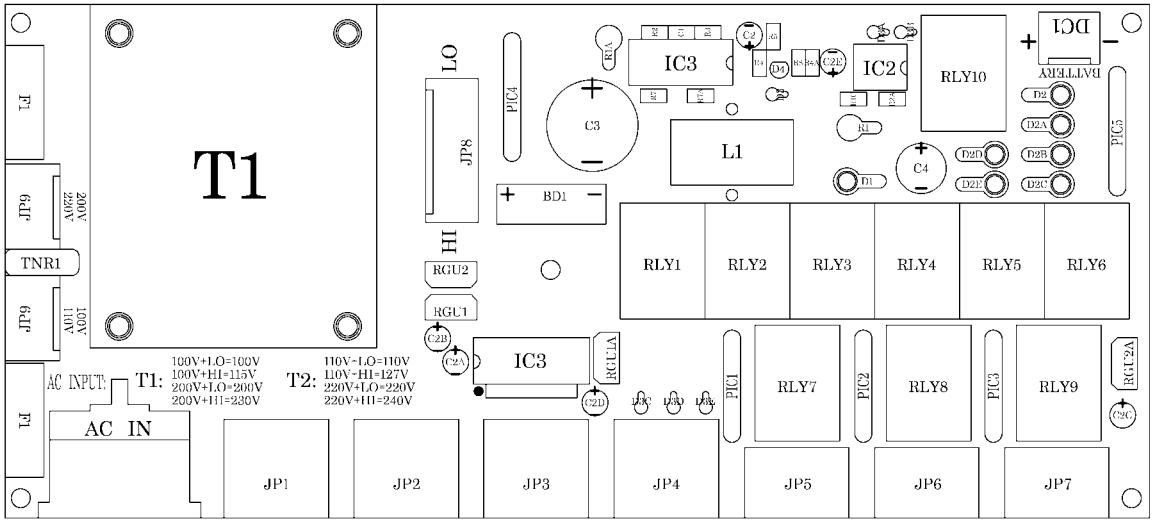
The motion control for the electric Basic Care™ Bed consists of linear actuators, siderail controls, foot end controls, and electronics providing the motion of the sleep deck. For the manual bed, the motion control is made up of cranks and other mechanisms.

Transformer Configurations

The electric Basic Care™ Bed permits eight different input source voltages using two transformers and various connector positions on the control board (see figure 3-1 on page 3-2).

NOTE:
The control board is configured for either T1 or T2 transformers.

Figure 3-1. Transformer Configurations



m336_047

For the correct transformer configuration, refer to table 3-1 on page 3-2.

Table 3-1. Transformer Configurations

Input Source Voltage	Transformer	JP9 or JP10 Position	JP8 Position
100 V	T1	JP10	LO
110 V	T2	JP10	LO
115 V	T1	JP10	HI
127 V	T2	JP10	HI
200 V	T1	JP9	LO
220 V	T2	JP9	LO

Input Source Voltage	Transformer	JP9 or JP10 Position	JP8 Position
230 V	T1	JP9	HI
240 V	T2	JP9	HI

NOTE:
When JP8 is in the *LO* position, the end of the connector is adjacent to the word *LO* on the control board. When JP8 is in the *HI* position, the end of the connector is adjacent to the word *HI*.

Motor Assemblies

Thermal regulators are an integrated part of the motors, protecting them in the event that an overload condition occurs. Thermals will stop the motor automatically if it heats up to a certain temperature. The motors will not run again until the automatic thermal resets.

Battery Backup

When no mains power is supplied to the electric Basic Care™ Bed, the battery backup system can operate the following functions: CPR, Trendelenburg, and Reverse Trendelenburg, The operation is for one cycle with the safe working load (SWL) of 450 lb (204 kg) on the bed. For the battery backup wiring diagram, see figure 1-6 on page 1-16.

Controls

On the electric Basic Care™ Bed, patients or caregivers can change the angle of the head and knee sections and the height of the bed by pushing low voltage controls located on the head siderails. The angle between the foot and knee sections can be manually adjusted by using the foot rack located beneath the sleep surface. The manual Basic Care™ Bed uses cranks located at the foot end to operate the same functions.

Both the manual and electric versions of the Basic Care™ Bed have manually operated Trendelenburg and Reverse Trendelenburg functions. The electric Basic Care™ Bed uses the hilow motor to put the bed into Trendelenburg or Reverse Trendelenburg after it is operated.

NOTE:
The lockout controls on the electric Basic Care™ Bed can keep any one or all of the three motors from operating.

NOTES:

Chapter 4
Removal, Replacement, and Adjustment Procedures

Tool and Supply Requirements

To service the Basic Care™ Bed, the following tools and supplies are necessary:

- Phillips head screwdriver
- Screwdriver
- Small screwdriver
- 13 mm socket
- 17 mm socket
- Ratchet
- 8 mm nut driver, deep well
- 13 mm nut driver
- 6 mm wrench
- 8 mm wrench
- 17 mm wrench
- 2.5 mm Allen™[1] wrench
- 3 mm Allen™ wrench
- 4 mm Allen™ wrench
- 4 mm T-handle Allen™ wrench
- 5 mm Allen™ wrench
- 8 mm Allen™ wrench
- 10 mm Allen™ wrench

1. Allen™ is a trademark of Industrial Fasteners, Inc.

- Wire cutters
- Needle nose pliers
- Rubber mallet
- Bed supports
- Straps
- Bed frame jack
- Caster blocks

4.1 Control Box Assembly

Tools required: 5 mm Allen™[1] wrench
Screwdriver

Removal

1. Raise the head section to its highest position.

2. Adjust the bed height to have access to the cables (A) (see figure 4-1 on page 4-4).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.

4. Disconnect the cables (A) from the control box assembly (B) (see figure 4-1 on page 4-4).

NOTE:
It may be necessary to use a screwdriver as leverage to disconnect the cables from their sockets.

5. While supporting the control box assembly (B), remove the three screws (C) attaching the mounting bracket (D) to the bed frame (E).

6. Remove the control box assembly (B) and the mounting bracket (D) from the bed frame (E).

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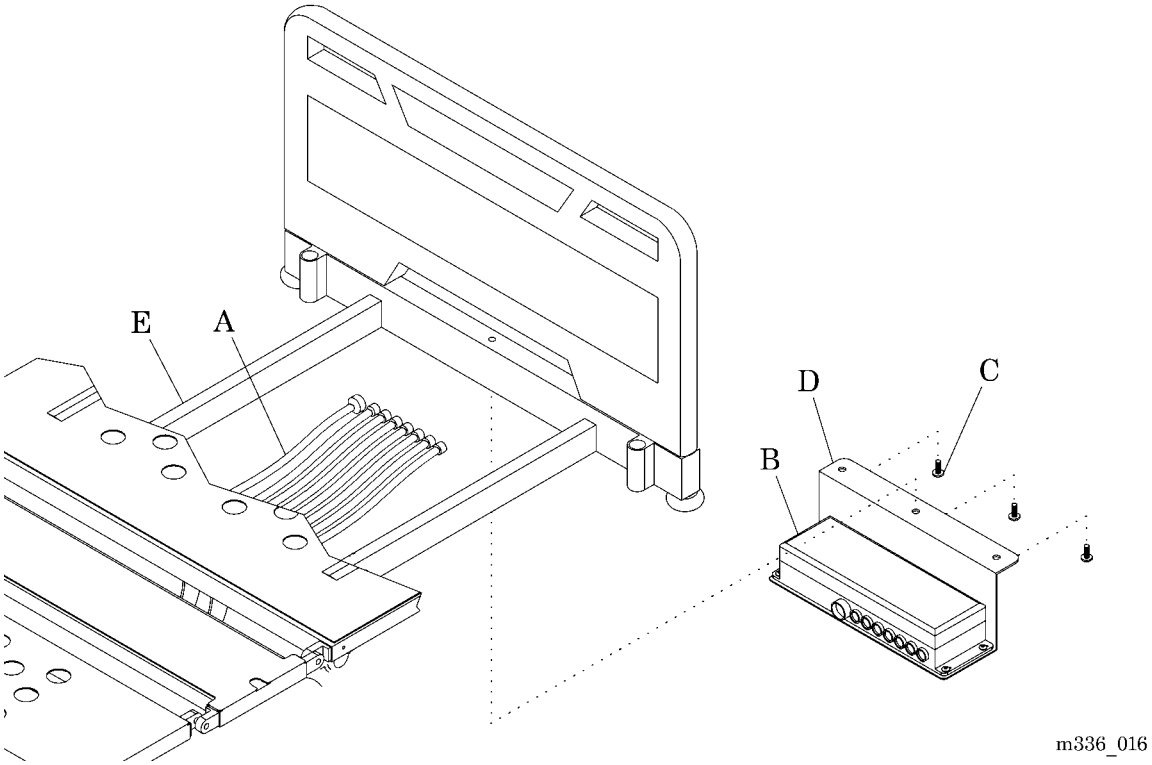
Figure 4-1. Control Box Assembly



Replacement

1. Do the removal procedure in the reverse order.

CAUTION:
Connect the cables to the correct socket. Failure to do so may cause the equipment to operate incorrectly.

2. Make sure the numbers marked on the cables (A) match the numbers marked on the control box assembly (B).

3. Do the “Function Checks” on page 2-2.

4.2 Control Panel, Foot End

Tools required: Phillips head screwdriver
Wire cutters

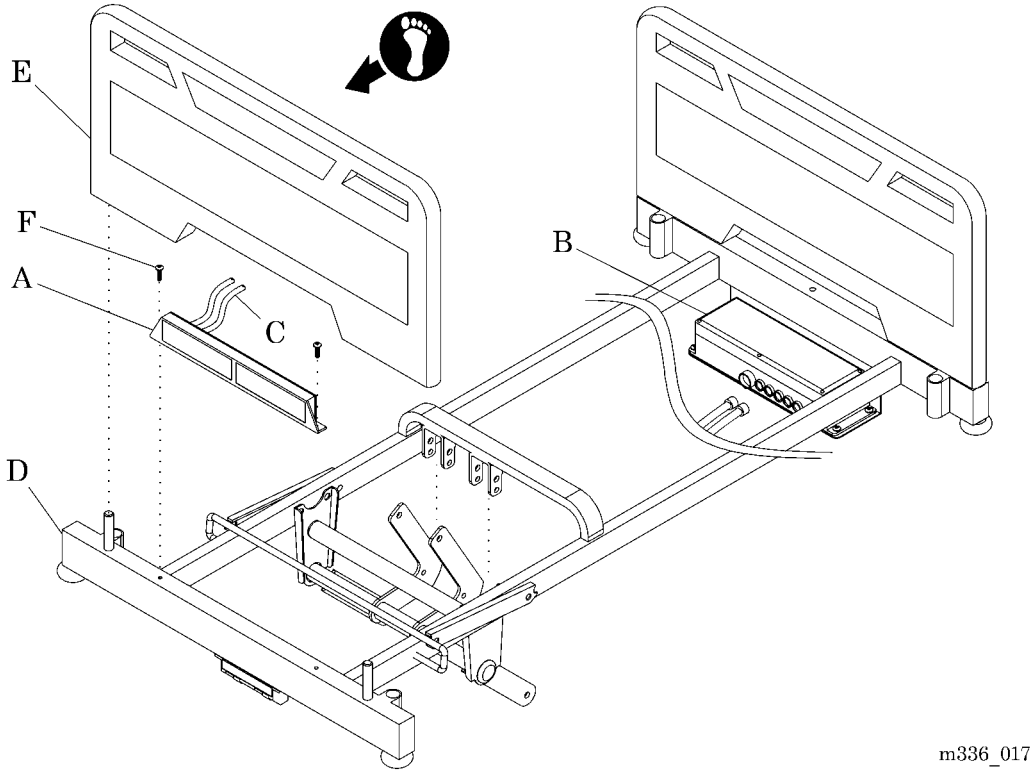
Removal

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Disconnect the bed from its power source.

2. Make a note showing the cable routing from the foot end control panel (A) to the control box assembly (B) (see figure 4-2 on page 4-5).

Figure 4-2. Foot End Control Panel Assembly



CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

3. Carefully cut all of the wires ties on the two cables (C) from the foot end control panel (A) to the bed frame (D).
4. Disconnect the two cables (C) from the control box assembly (B).
5. Remove the footboard (E) from the bed frame (D).
6. Remove the two screws (F) attaching the foot end control panel (A) to the bed frame (D).
7. Remove the foot end control panel (A) from the bed frame (D).

Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.3 Trendelenburg Control Box

Tools required: 3 mm Allen™[1] wrench
Needle nose

Removal

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Disconnect the bed from its power source.
2. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
3. Remove the two retaining rings (A) attaching the Trendelenburg and Reverse Trendelenburg rods (B) to the switches (C) (see figure 4-3 on page 4-8).
4. Remove the two screws (D) attaching the Trendelenburg control box (E) to the bed frame (F).
5. Remove the Trendelenburg control box (E) from the bed frame (F).

4

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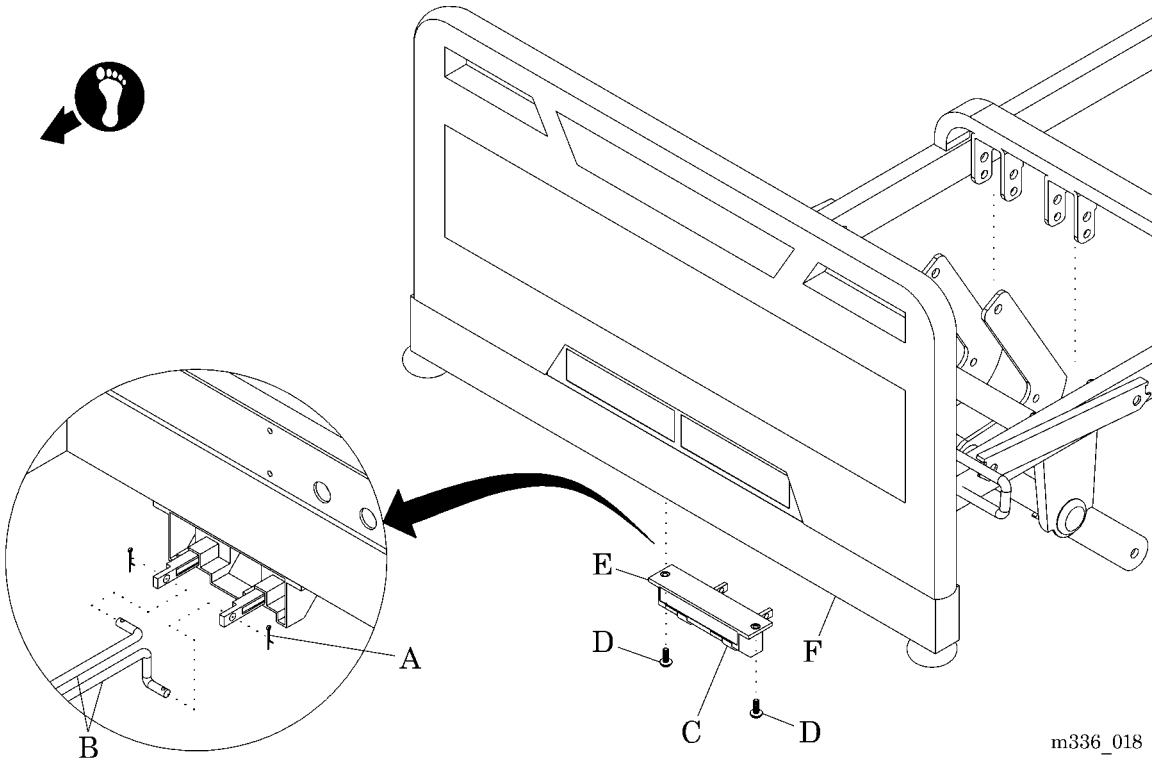
Figure 4-3. Trendelenburg Control Box



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.4 Trendelenburg or Reverse Trendelenburg Assembly

Tools required: Needle nose pliers
Phillips head screwdriver
Bed supports

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

2. Raise the bed to the highest position.

WARNING:
Do not work under an unsupported load. Install appropriate temporary supports. Failure to do so could result in personal injury or equipment damage.

3. Put bed supports under the upper bed frame (A) (see figure 4-4 on page 4-10).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

4. Disconnect the bed from its power source.

5. Remove the retaining ring (B) attaching the Trendelenburg rod (C) or Reverse Trendelenburg rod (D) to the trip lever (E).

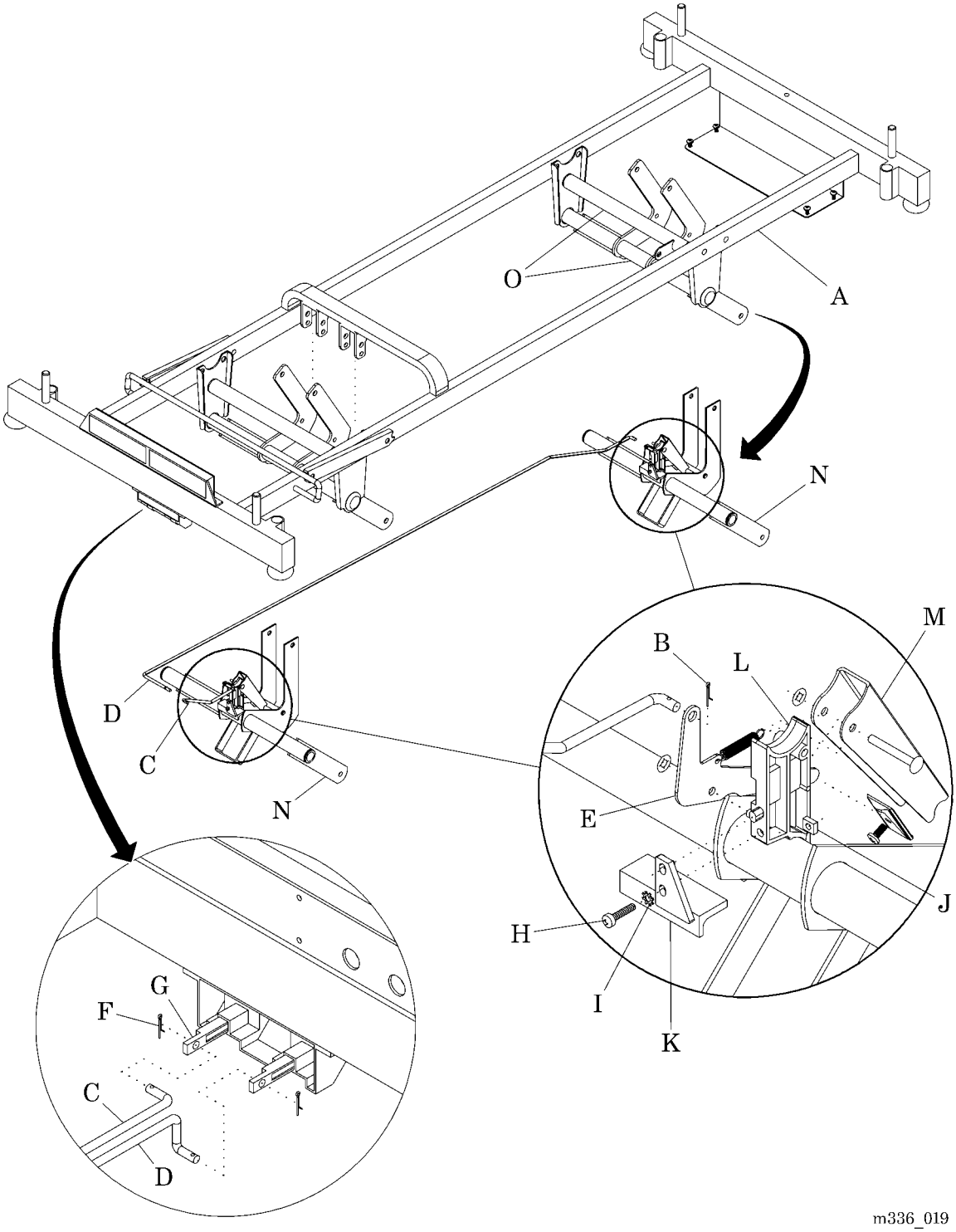
NOTE:
The procedure for the Trendelenburg and Reverse Trendelenburg assemblies are the same, except for the rods. Only Trendelenburg will be called out for the rest of this procedure.

6. Remove the retaining ring (F) attaching the Trendelenburg rod (C) to the switch (G).

7. Remove the screw (H), lockwasher (I), and nut (J) attaching the retainer (K) to the mount (L).

8. Remove the retainer (K), mount (L), and stop (M) from the lower lift arm (N).

Figure 4-4. Trendelenburg or Reverse Trendelenburg Assembly



Replacement

1. Install the screw (H), lockwasher (I), and nut (J) to attach the retainer (K) to the mount (L).

2. Install the stop (M) between the torque tubes (O).

NOTE:
Look at the opposite assembly (Trendelenburg or Reverse Trendelenburg) to see how it is attached to the bed.

3. Insert the Trendelenburg rod (C) into the trip lever (E).

4. Install the retaining ring (B) to attach the Trendelenburg rod (C) to the trip lever (E).

5. Install the retaining ring (F) to attach the Trendelenburg rod (C) to the switch (G).

6. Make sure the mechanical linkage engages correctly.

7. Make sure the stop (M) is wedged in between the two torque tubes (O) when either the Trendelenburg or Reverse Trendelenburg handle (G) is engaged.

8. Remove the bed supports.

9. Connect the battery cable to the control board (refer to procedure 4.7 on page 4-16).

10. Connect the bed to the correct power source.

11. Do the “Function Checks” on page 2-2.

4.5 Trendelenburg and Reverse Trendelenburg Indicators

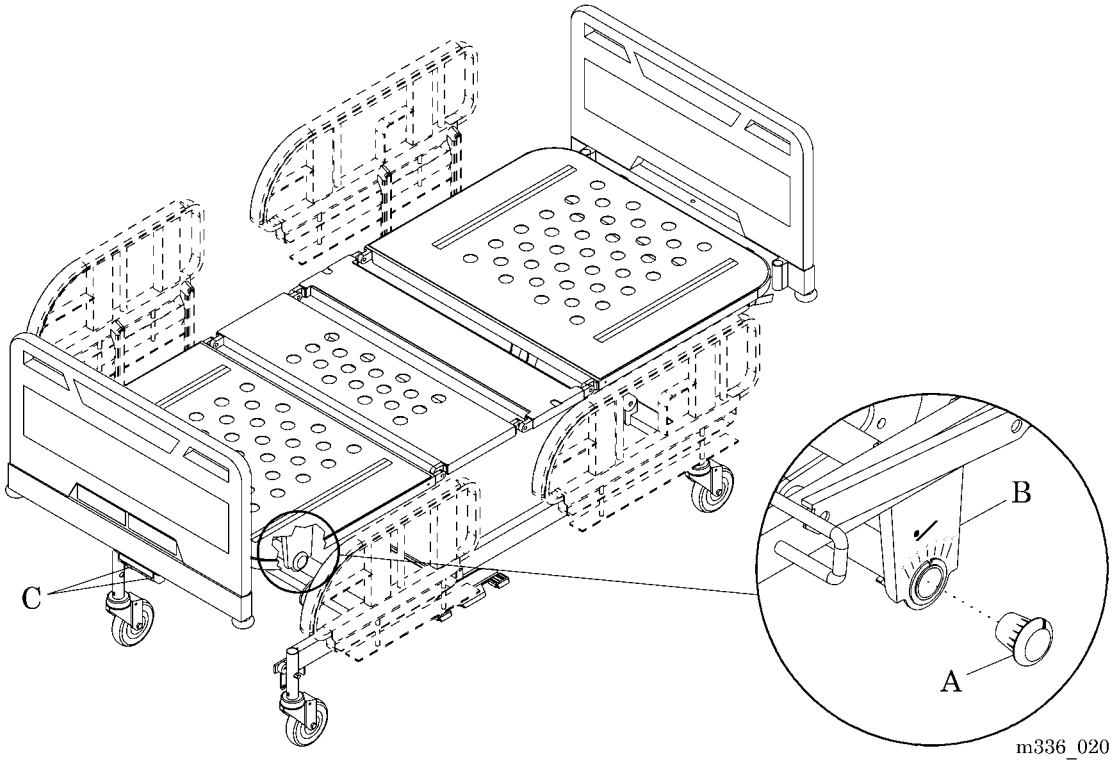
Tools required: Screwdriver
Rubber mallet

Whenever one of the **Trendelenburg** indicators needs replaced or reset, adjust the indicator caps.

Removal

Carefully pry the indicator cap (A) from the lift arm (B) (see figure 4-5 on page 4-12).

Figure 4-5. Trendelenburg and Reverse Trendelenburg Indicator



Replacement and Adjustment

1. Raise the bed to the highest position.

2. Pull out both the Trendelenburg and the Reverse Trendelenburg handles (C).

3. Lower the bed until it stops moving. The bed is now at 0° Trendelenburg and Reverse Trendelenburg.

CAUTION:
Use care when removing indicator caps. Failure to do so could damage the indicator cap.

4. If the indicator cap (A) is installed, carefully remove it.
5. Align the mark on the indicator cap (A) with the 0° marks on the angle indicator label (B).
6. Put the indicator cap (A) in the lift arms (B).
7. To disengage the Trendelenburg, raise the bed to the highest position.
8. Do the “Function Checks” on page 2-2.

4.6 Fuses

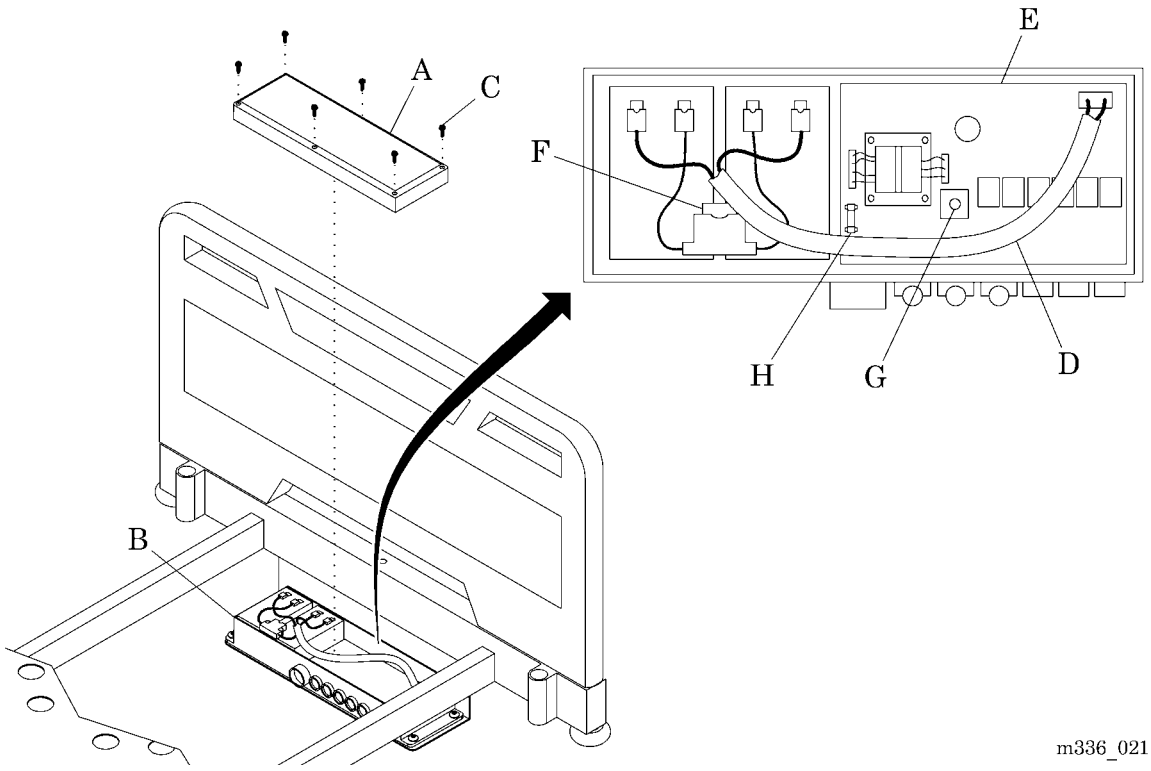
Tools required: Phillips head screwdriver
Needle nose pliers

Removal

1. Raise the head section to the highest position.

2. Adjust the bed height to have access to the cover (A) (see figure 4-6 on page 4-14).

Figure 4-6. Control Box Assembly



SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.

4. Remove the six screws (C) attaching the cover (A) to the control box assembly (B).

5. Disconnect the battery cable (D) from the control board (E).
6. Remove the fuse (F) from the fuse assembly (G).
7. Remove the fuse (H) from the control board (E).

Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.7 Battery Backup

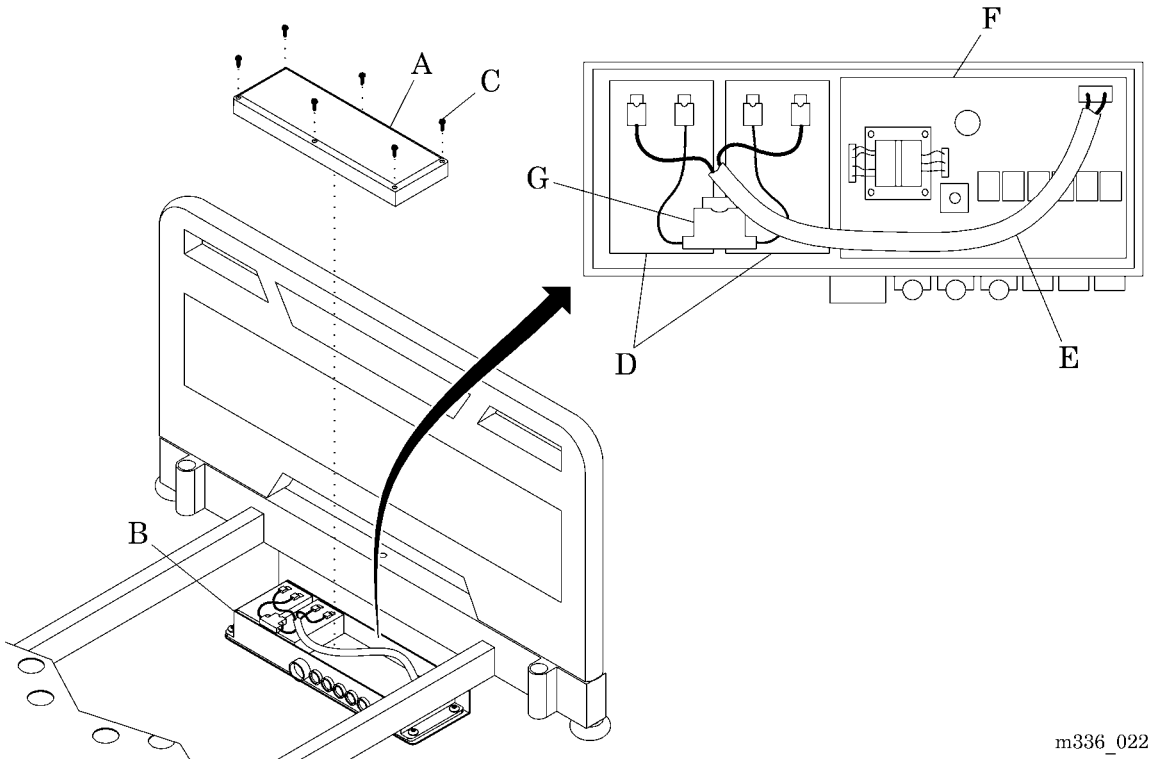
Tools required: Phillips head screwdriver
Needle nose pliers

Removal

1. Raise the head section to the highest position.

2. Adjust the bed height to have access to the cover (A) (see figure 4-7 on page 4-16).

Figure 4-7. Control Box Assembly



SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.

4. Remove the six screws (C) attaching the cover (A) to the control box assembly (B).

5. Make a note of the position of the two batteries (D).

6. Disconnect the battery cable (E) from the control board (F).

7. Disconnect the battery cable (E) and the fuse assembly (G) from the two batteries (D).

CAUTION:
Dispose of batteries according to your local regulations. Failure to dispose of batteries correctly may damage the environment.

8. Dispose of the two batteries (D) according to your local regulations.

Replacement

1. Do the removal procedure in the reverse order.

2. Do the "Function Checks" on page 2-2.

4.8 Head Motor

Tools required: Needle nose pliers
Wire cutters

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

2. Raise the bed to the highest position.

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.

4. Using the CPR handle (A), lower the head section (B) to the lowest position (see figure 4-8 on page 4-19).

5. Make a note showing the cable routing from the head motor (C) to the control box assembly (D).

CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

6. Carefully cut all of the wires ties attaching the head motor cable (E) to the bed frame (F).

7. Remove the CPR cable (G) from the head motor (C) (refer to procedure 4.9 on page 4-20).

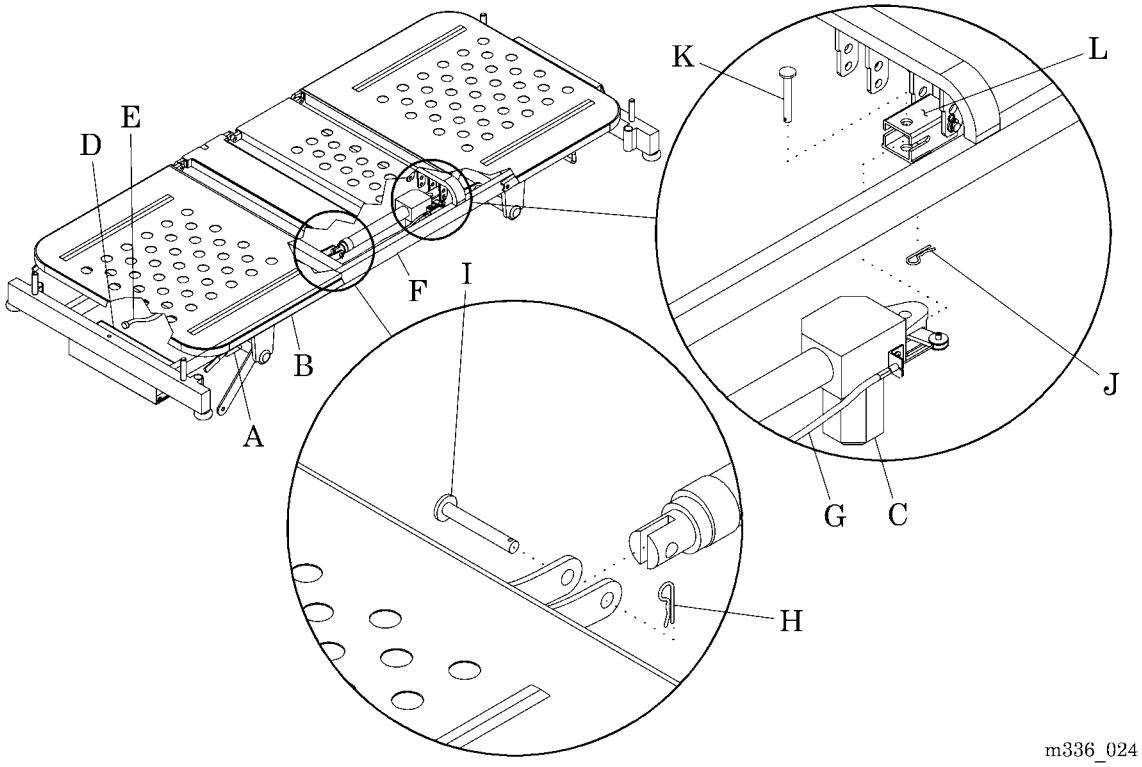
8. Disconnect the head motor cable (E) from the control box assembly (D).

9. Remove the retaining ring (H) and pin (I) attaching the head motor (C) to the bed frame (F).

10. Remove the retaining ring (J) and pin (K) attaching the head motor (C) to the mounting bracket (L).

11. Remove the head motor (C).

Figure 4-8. Head Motor



Replacement

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

1. When routing the cables, make sure they have enough slack for the bed to move through its full range of motion.

2. Do the removal procedure in the reverse order.

Adjustment

Adjust the tension on the CPR cable (G) (refer to procedure 3.2 on page 3-10).

4.9 CPR Cable

Tools required: Phillips head screwdriver
4 mm Allen™ wrench
6 mm wrench
8 mm wrench
Needle nose pliers
Wire cutters

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

2. Raise the bed to the highest position.

3. Raise the head section to the highest position.

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

4. Disconnect the bed from its power source.

5. Make a note showing the cable routing from the CPR handle assembly (A) to the head motor (B).

CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

6. Carefully cut all of the wires ties attaching the CPR cable (C) to the bed frame (D).

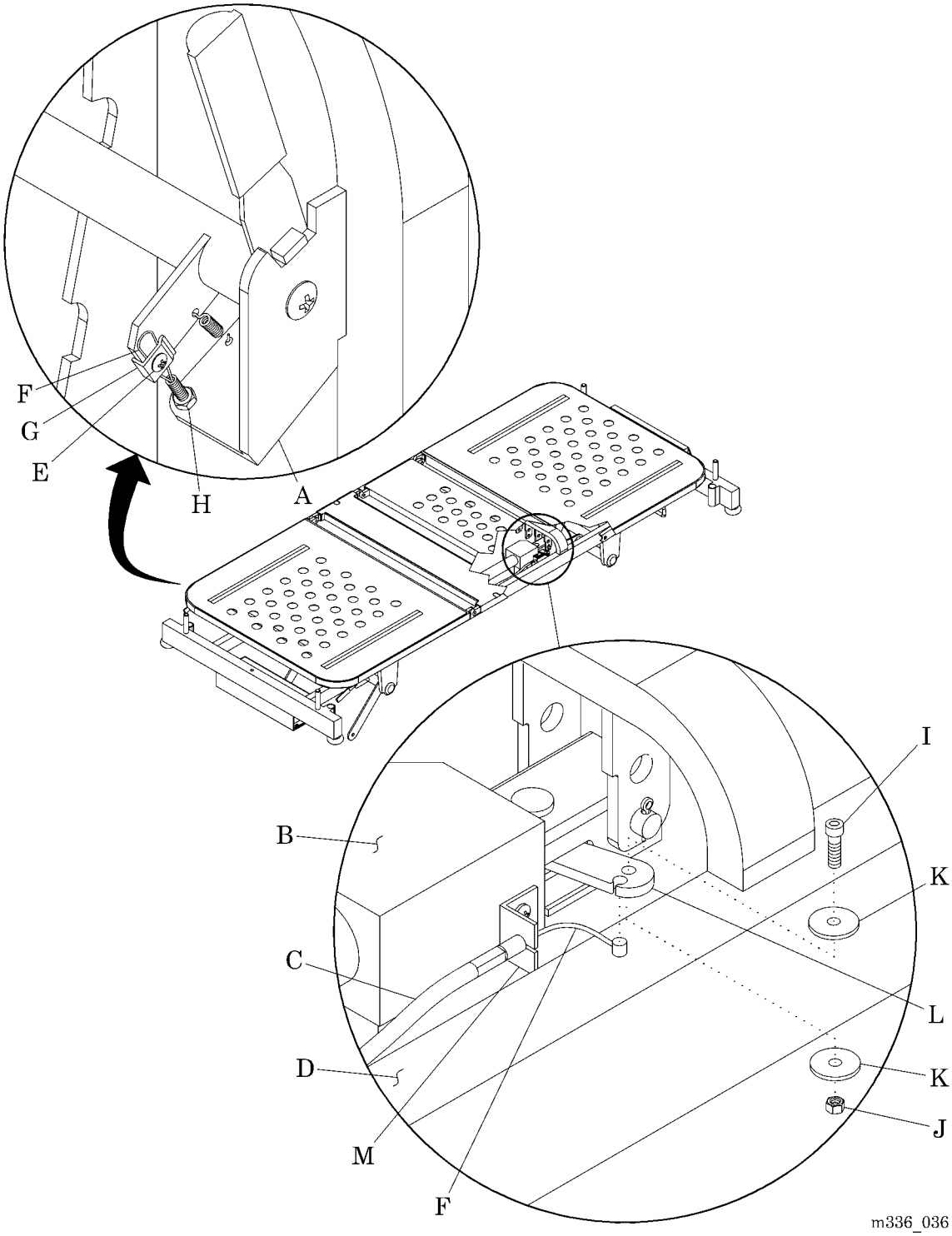
7. Loosen the screw (E) that is attaching the CPR wire (F) to the bracket (G).

8. Remove the nut (H) attaching the CPR cable (C) to the CPR handle assembly (A).

9. Remove the CPR cable (C) from the CPR handle assembly (A).

10. Remove the screw (I), nut (J), and two washers (K) attaching the CPR wire (F) to the lever (L).

Figure 4-9. CPR Cable Assembly



11. Lift the CPR wire (F) up and out of the lever (L).

12. Pull the CPR cable (C) out of the mounting bracket (M).

Replacement

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

1. When routing the cables, make sure they have enough slack for the bed to move through its full range of motion.

2. Do the removal procedure in the reverse order.

Adjustment

Adjust the tension on the CPR cable (C) (refer to procedure 3.2 on page 3-10).

4.10 Knee Motor

Tools required: Needle nose pliers
Wire cutters
Straps

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
2. Raise the bed to the highest position.
3. Raise the head section (A) to the highest position (see figure 4-10 on page 4-24).
4. Lift the foot section (B) of the sleep surface, and fold it back toward the head section (A).

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

5. Use straps to attach the foot section (B) to the head section (A).

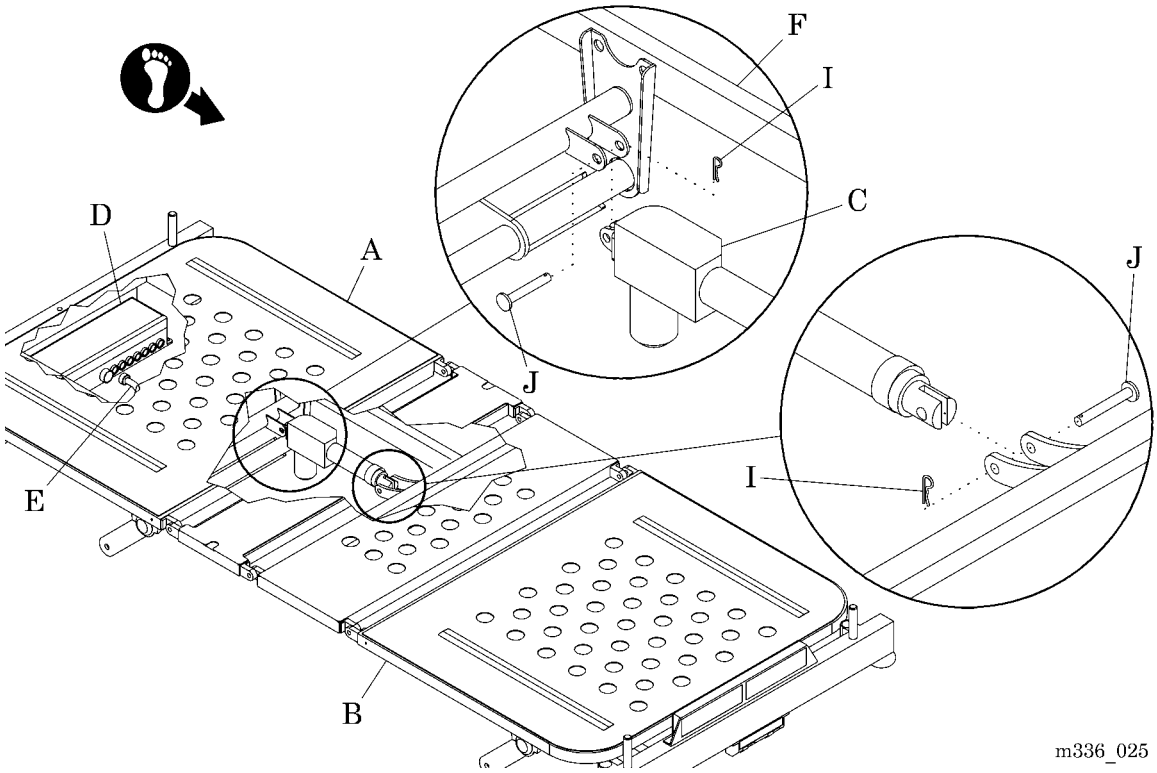
SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

6. Disconnect the bed from its power source.
7. Make a note showing the cable routing from the knee motor (C) to the control box assembly (D).

CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

8. Carefully cut all of the wires ties attaching the knee motor cable (E) to the bed frame (F).
9. Disconnect the knee motor cable (E) from the control box assembly (D).

Figure 4-10. Knee Motor



10. Remove the two retaining rings (I) and two pins (J) attaching the knee motor (D) to the bed frame (F).

11. Remove the knee motor (D).

Replacement

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

1. When routing the cables, make sure they have enough slack for the bed to move through its full range of motion.

2. Do the removal procedure in the reverse order.

3. Do the “Function Checks” on page 2-2.

4.11 Hilow Motor

Tools required: 10 mm Allen™[1] wrench
13 mm socket
Needle nose pliers
Wire cutters
Bed supports

Removal

WARNING:
Do not work under an unsupported load. Install appropriate temporary supports. Failure to do so could result in personal injury or equipment damage.

1. Put bed supports under the upper bed frame.

2. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

3. Raise the head section (A) to its highest position (see figure 4-11 on page 4-26).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

4. Disconnect the bed from its power source.

5. Make a note showing the cable routing from the hilow motor (B) to the control box assembly (C).

CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

6. Carefully cut all of the wires ties attaching the hilow motor cable (D) to the bed frame (E).

7. Disconnect the hilow motor cable (D) from the control box assembly (C).

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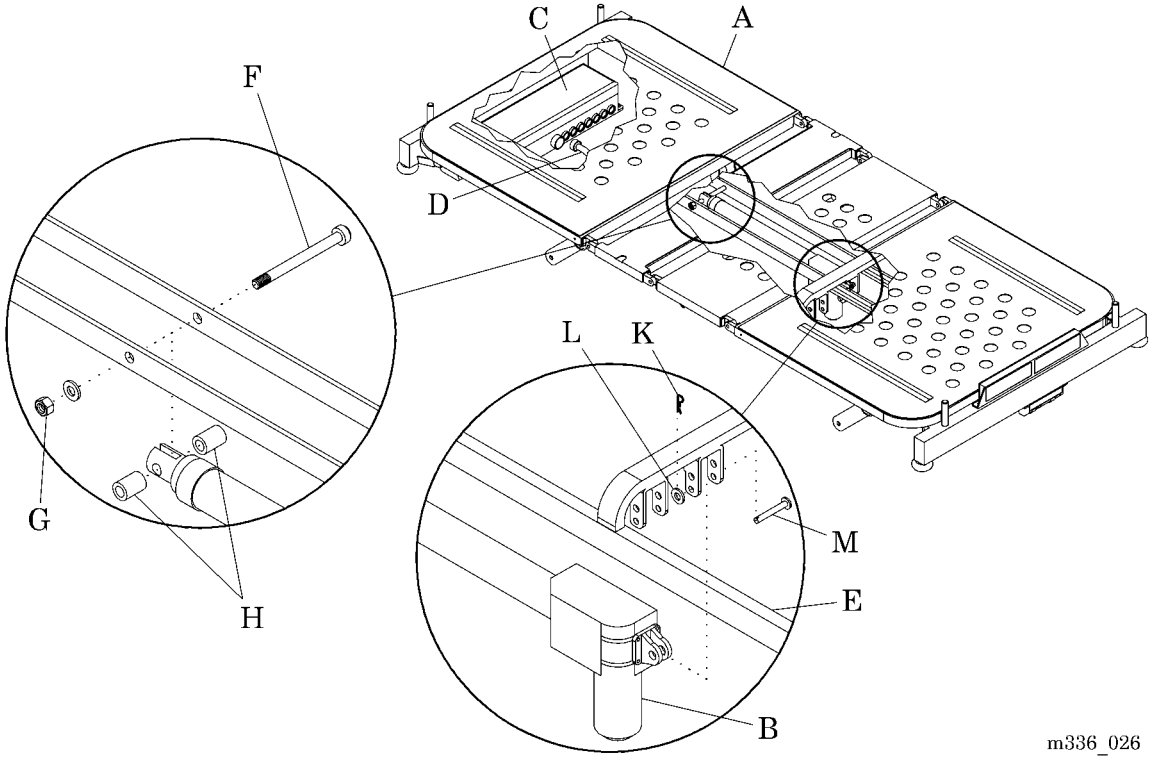
Figure 4-11. Hilow Motor



8. Remove the bolt (F), nut (G), and two spacers (H) attaching half of the hilow motor (B) to the bed frame (E).

9. Remove the retaining ring (K), washer (L), and pin (M) attaching the other half of the hilow motor (B) to the bed frame (E).

Replacement

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

1. When routing the cables, make sure they have enough slack for the bed to move through its full range of motion.

2. Do the removal procedure in the reverse order.

3. Do the “Function Checks” on page 2-2.

4.12 Manual Crank Handle Assembly

Tools required: Small screwdriver
Straps

Removal

1. Raise the knee section and head section to their highest positions.

2. Lift the foot section of the sleep surface, and fold it back toward the head section.

NOTE:
If either of these sections cannot be raised, this procedure can be done from underneath the foot end.

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

3. Use straps to attach the foot section to the head section.

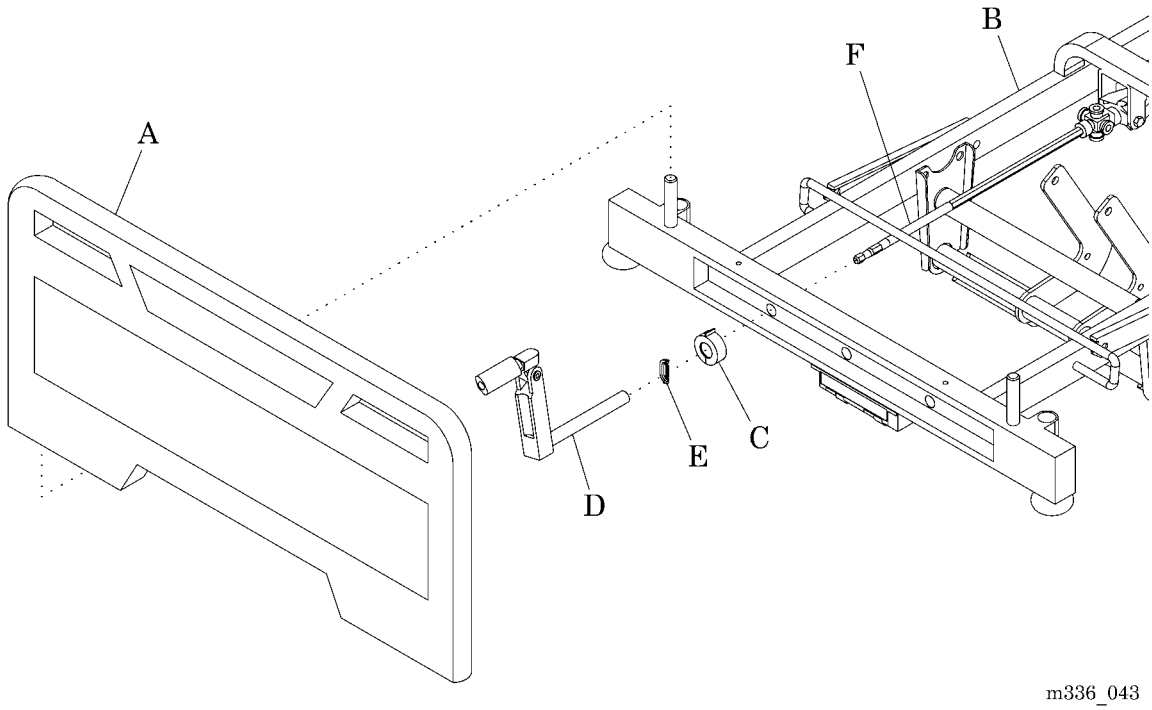
4. Remove the footboard (A) from the bed frame (B) (see figure 4-12 on page 4-28).

5. Remove the plastic housing (C) from the crank handle assembly (D).

6. Lift the spring assembly (E) from the groove in the crank handle assembly (D), and push the spring assembly (E) up the shaft of the crank handle assembly (D).

7. Pull the crank handle assembly (D) out of the crank rod (F).

Figure 4-12. Manual Crank Handle Assembly



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.13 Head or Knee Crank Rod and Drive Screw Assembly (Manual Model Only)

Tools required: Small screwdriver
17 mm wrench
17 mm socket
Ratchet

Removal

1. Raise the knee section and head section to their highest positions.

2. Lift the foot section of the sleep surface, and fold it back toward the head section.

NOTE:
If either of these sections cannot be raised, this procedure can be done from underneath the foot end.

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

3. Use straps to attach the foot section to the head section.

4. Remove the footboard (A) from the bed frame (B) (see figure 4-13 on page 4-30).

5. Remove the plastic housing (C) from the crank handle assembly (D).

6. Lift the spring assembly (E) from the groove in the crank handle assembly (D), and push the spring assembly (E) up the shaft of the crank handle assembly (D).

7. Pull the crank handle assembly (D) out of the bed frame (B) until the crank rod (F) releases from crank handle assembly (D).

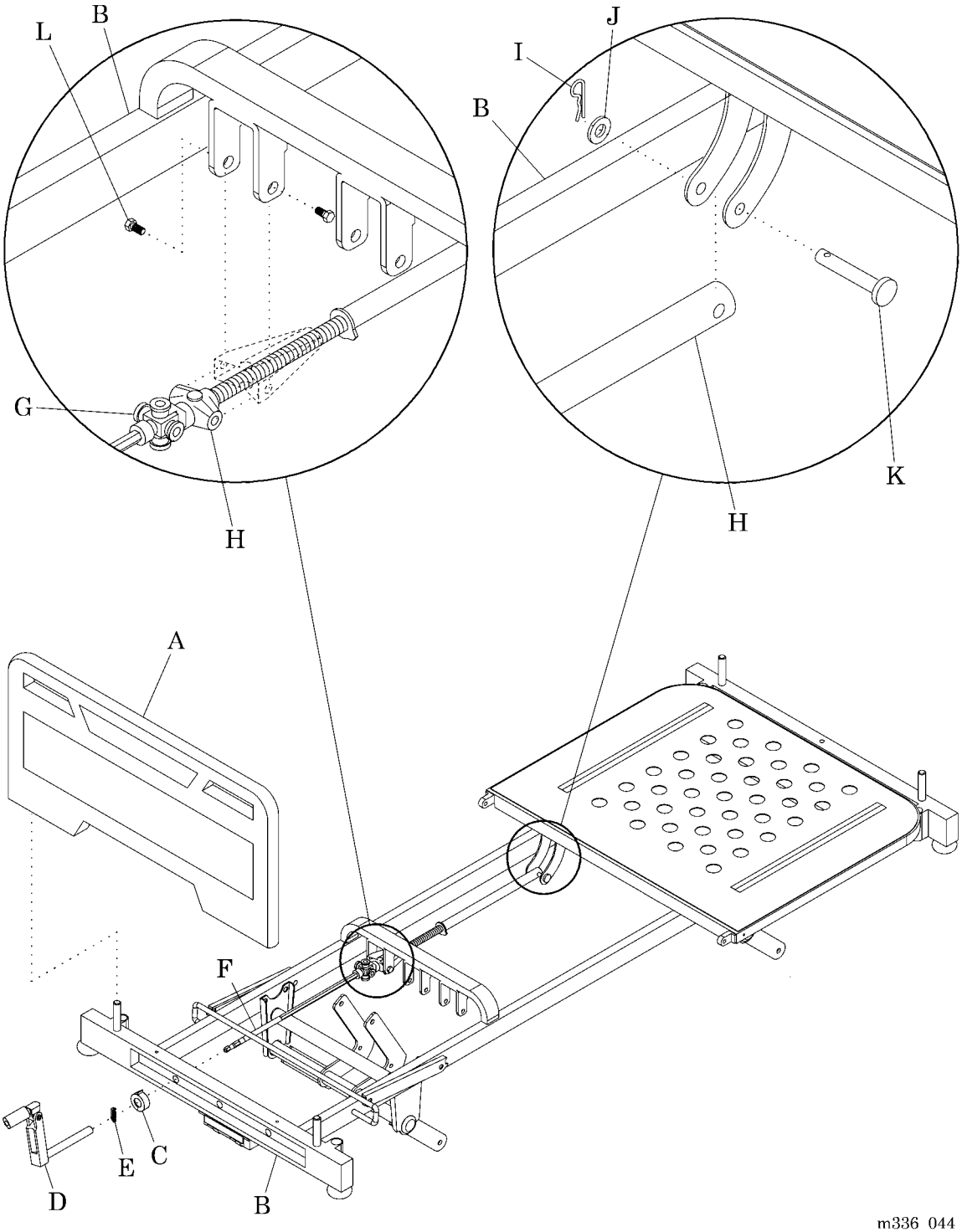
8. Gently pry up on one side of the u-joint connection (G).

9. Gently pry up on the opposite side of the u-joint connection (G).

10. Remove the crank rod (F) from the drive screw assembly (H).

11. Remove the retaining ring (I), washer (L), and pin (K) attaching the drive screw assembly (H) to the bed frame (B).

Figure 4-13. Head or Knee Crank Rod and Drive Screw Assembly



12. Remove the two bolts (L) attaching the drive screw assembly (H) to the bed frame (B).

Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.14 Hilow Crank Rod and Drive Screw Assembly Including Gas Springs (Manual Model Only)

Tools required: Small screwdriver
17 mm wrench
17 mm socket
Ratchet
10 mm Allen™[1] wrench
13 mm socket

Removal

WARNING:
Do not work under an unsupported load. Install appropriate temporary supports. Failure to do so could result in personal injury or equipment damage.

1. Put bed supports under the upper bed frame.
2. Raise the knee section and the head section to their highest positions.
3. Lift the foot section of the sleep surface, and fold it back toward the head section.

NOTE:
If either of these sections cannot be raised, this procedure can be done from underneath the foot end.

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

4. Use straps to attach the foot section to the head section.
5. Remove the footboard (A) from the bed frame (B) (see figure 4-14 on page 4-33).
6. Remove the plastic housing (C) from the crank handle assembly (D).

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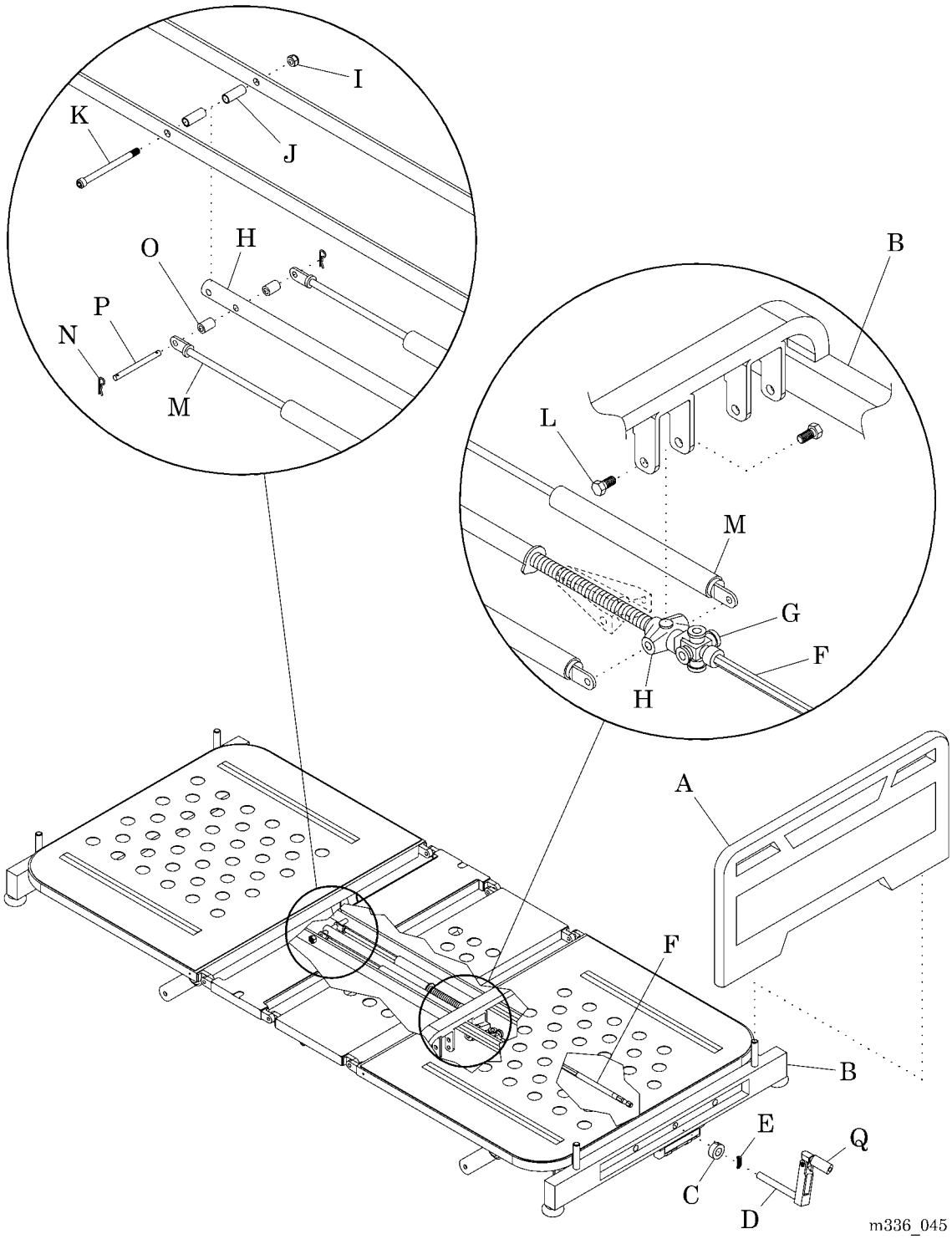
Figure 4-14. Hilow Crank Rod and Drive Screw Assembly Including Gas Springs



7. Lift the spring assembly (E) from the groove in the crank handle assembly (D), and push the spring assembly (E) up the shaft of the crank handle assembly (D).

8. Pull the crank handle assembly (D) out of the bed frame (B) until the crank rod (F) releases from crank handle assembly (D).

9. Gently pry up on one side of the u-joint connection (G) attaching the crank rod (F) to the drive screw assembly (H).

10. Gently pry up on the opposite side of the u-joint connection (G), and remove the crank rod (F) from the drive screw assembly (H).

11. Remove the nut (I), two spacers (J), and bolt (K) attaching the drive screw assembly (H) to the bed frame (B).

12. Remove the two bolts (L) attaching the drive screw assembly (H) and the two gas springs (M) to the bed frame (B).

13. Remove the two retaining rings (N), two spacers (O), and pin (P) attaching the two gas springs (M) to the drive screw assembly (H).

Replacement

1. Install the two bolts (L) to attach the drive screw assembly (H) and the two gas springs (M) to the bed frame (B).

2. Connect the u-joint on the crank rod (F) to the drive screw assembly (H).

3. Connect the crank handle assembly (D) to the crank rod (F).

4. Install the spring assembly (E) and the plastic housing (C) to attach the crank rod (F) to the crank handle assembly (D).

5. Turn the handle (Q) clockwise until the drive screw assembly (H) stops.

6. Install the pin (P), two spacers (O) and two retaining rings (N) to attach the two gas springs (M) to the drive screw assembly (H).

7. Install the bolt (K), two spacers (J), and nut (L) to attach the drive screw assembly (H) to the bed frame (B).

8. Install the footboard (A) on the bed frame (B).

9. Do the “Function Checks” on page 2-2.

4.15 CPR Handle Assembly

Tools required: Phillips head screwdriver
8 mm Allen™[1] wrench
Needle nose pliers

Removal

1. Raise the head section to the highest position.
2. Adjust the bed height to a comfortable working position.

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.
4. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
5. Remove the two screws (A) and two bushings (B) attaching the CPR handle assembly (C) to the bed frame (D) (see figure 4-15 on page 4-36).
6. Remove the spring (E) from the CPR handle assembly (C).
7. Loosen the screw (F) that is attaching the CPR wire (G) to the bracket (H).
8. Remove the CPR wire (G) from the bracket (H).
9. Remove the CPR handle assembly (C) from the bed frame (D).

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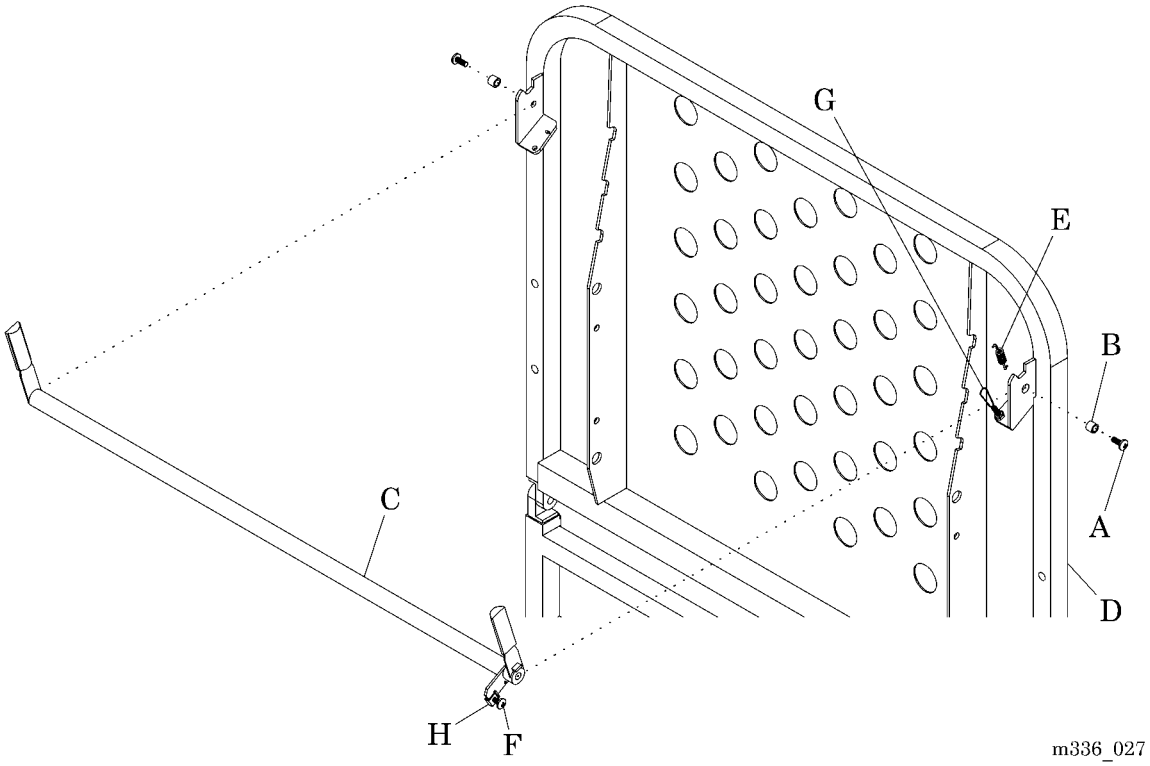
Figure 4-15. CPR Handle Assembly



Replacement

Do the removal procedure in the reverse order.

Adjustment

Adjust the tension on the CPR wire (G) (refer to procedure 3.2 on page 3-10).

4.16 Siderails

Tools required: 5 mm Allen™[1] wrench
Wire cutters

Removal

Prepare the Bed

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
2. Raise the bed to the highest position.
3. If you are replacing a headrail (A), raise the head section (B) to the highest position (see figure 4-16 on page 4-38).
4. If you are replacing a footrail (C), do the following:
   a. Raise the head section (B) and the knee section (D) to their highest positions.
   b. Lift the foot section (E) of the sleep surface, and fold it back toward the head section (B).

WARNING:
Attach the foot section to the head section. Failure to do so could result in personal injury.

   c. Use straps to attach the foot section (E) to the head section (B).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

5. Disconnect the bed from its power source.

Remove the Siderails

6. If the siderail is a footrail (C) or if the bed is a manual bed, do the following:
   a. Remove the two screws (F) and the slide bracket (G) attaching the siderail to the bed frame (H).

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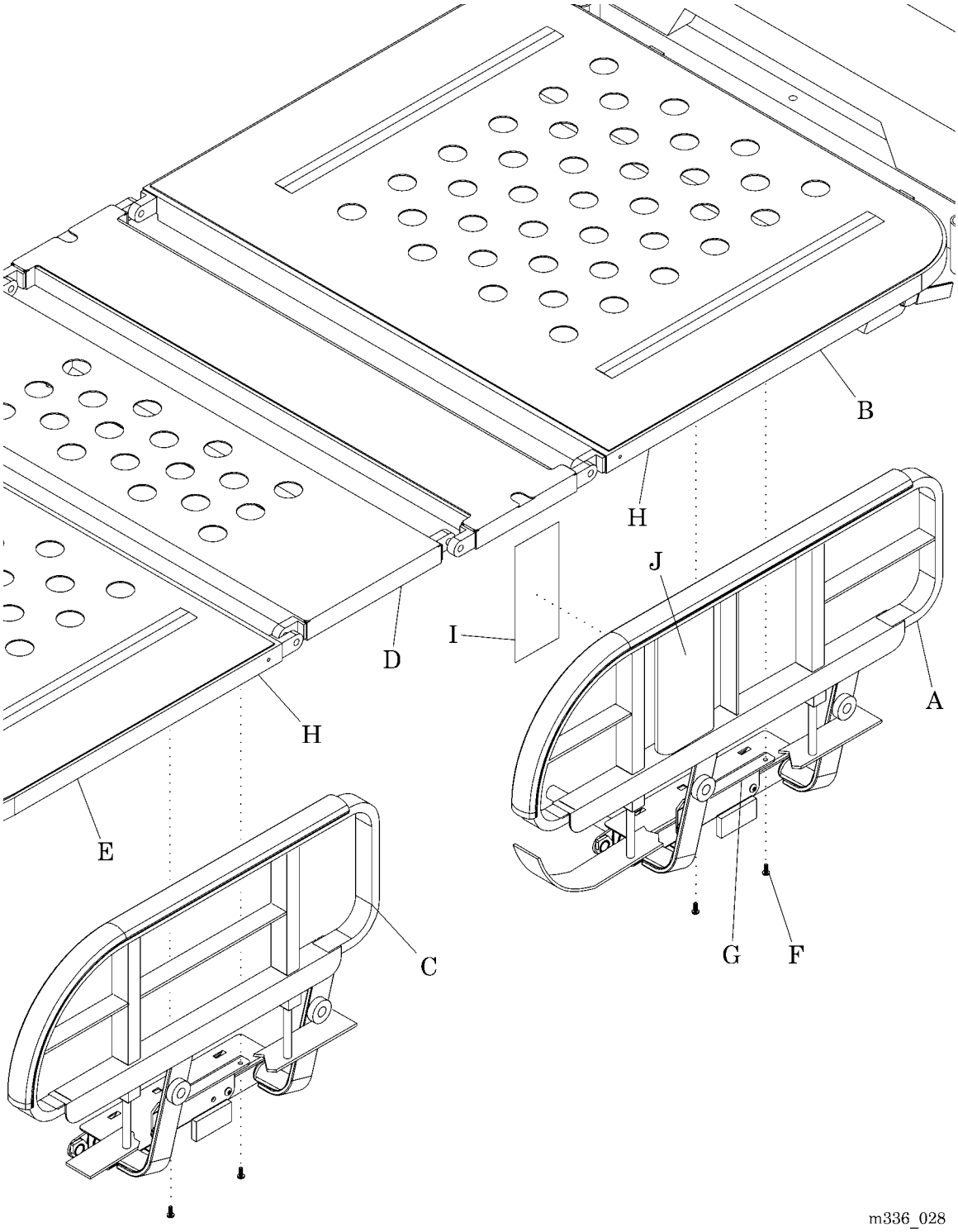
Figure 4-16. Siderails



b. Remove the siderail (C) from of the bed frame (H).

c. Go to "Replacement" on page 4-39.

7. If the siderail is a headrail (A) on an electric bed, do the following:

   a. Remove and discard the label (I) on the inside of the siderail control assembly (J).

NOTE:
The new headrail comes with a new label for the inside of the siderail control assembly.

   b. Remove the siderail control assembly (J) (refer to procedure 4.19 on page 4-44).

   c. Remove the two screws (F) and the slide bracket (G) attaching the headrail (A) to the bed frame (H).

   d. Remove the headrail (A) from of the bed frame (H).

Replacement

1. Do the removal procedure in the reverse order.

2. Do the "Function Checks" on page 2-2.

4.17 Siderail Slide Bracket

Tools required: 5 mm Allen™[1] wrench
Wire cutters

Removal

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Disconnect the bed from its power source.
2. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
3. Remove the two screws (A) attaching the siderail (B) to the bed (see figure 4-17 on page 4-41).
4. Pull the slide bracket (C) out of the siderail (B) (see figure 4-17 on page 4-41).

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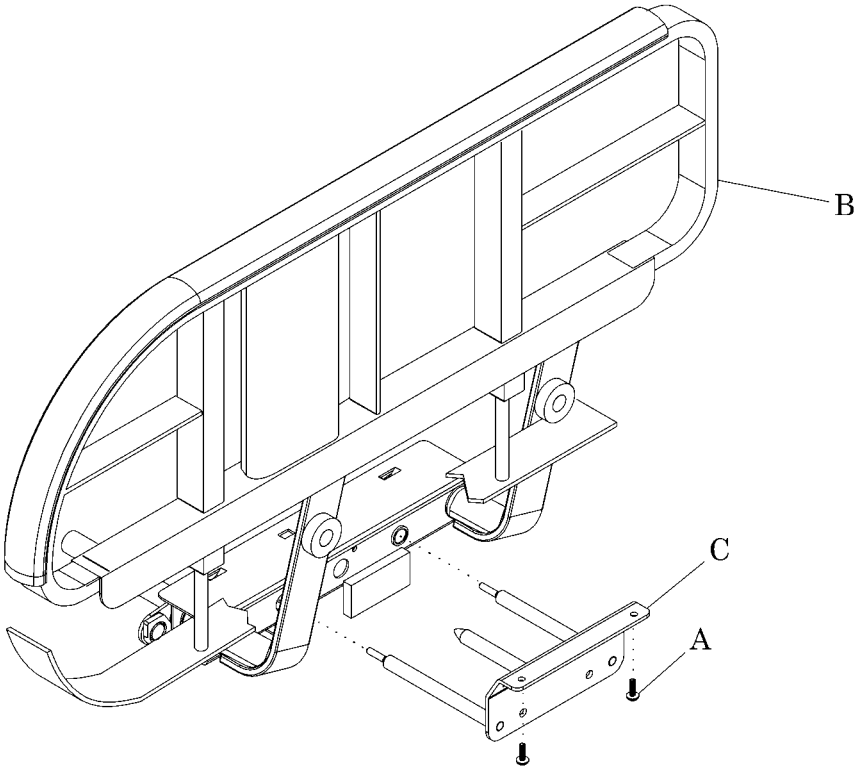
Figure 4-17. Slide Bracket



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.18 Siderail Retraction Assembly

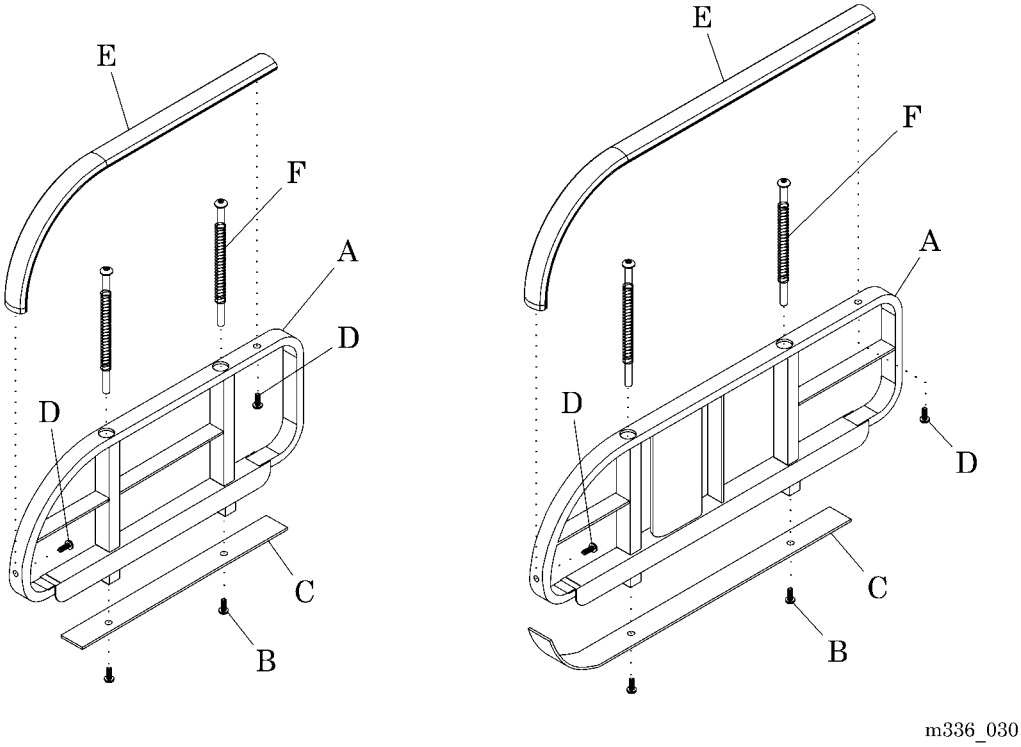
Tools required: 4 mm Allen™[1] wrench
4 mm T-handle Allen™ wrench
Phillips head screwdriver
Screwdriver

Removal

1. Raise the bed to the highest position.

2. Lower the siderail (A) to the down position (see figure 4-18 on page 4-42).

Figure 4-18. Siderail Retraction Assembly



3. Remove the two screws (B) attaching the lower bar (C) to the siderail (A).

NOTE:
The spring assemblies will move up suddenly, and hit the top cane.

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WARNING:
Wear eye protection. Failure to do so may result in eye injury.

4. Put on eye protection.
5. Remove the two screws (D) attaching the top cane (E) to the siderail (A).
6. Remove the two spring assemblies (F) from the siderail (A).

Replacement

1. Do the removal procedure in the reverse order.

NOTE:
There are both left-hand and right-hand siderail retraction assemblies.

2. Do the “Function Checks” on page 2-2.

4.19 Siderail Control Assembly

Tools required: Phillips head screwdriver
Wire cutters
8 mm nut driver, deep well

Removal

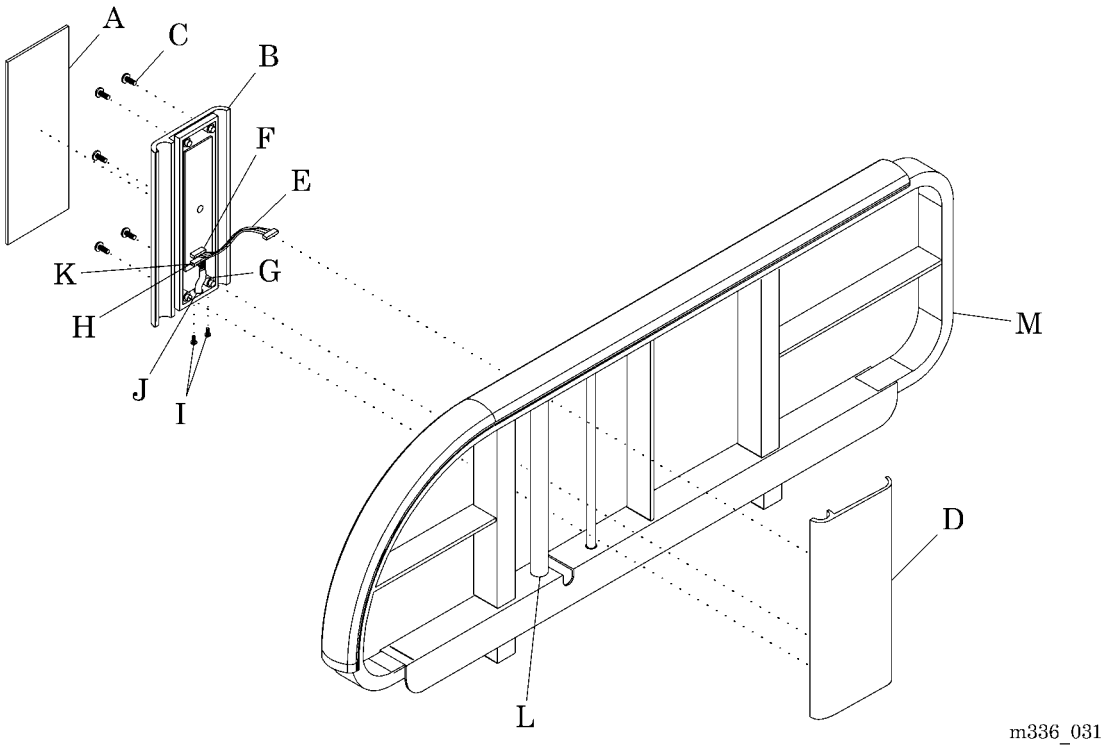
SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

1. Disconnect the bed from its power source.

2. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

3. Remove the patient label (A) from the inner half of the siderail control assembly (B) (see figure 4.19 on page 4-44).

Figure 4-19. Siderail Control Assembly



4. Remove the five screws (C) attaching the two halves of the siderail control assembly (D) and (B).

5. Disconnect the cable (E) from the top socket (F) on the outer half of the siderail control assembly (D).

6. Disconnect the siderail cable (G) from the bottom socket (H) on the outer half of the siderail control assembly (D).

7. Remove the two screws (I) attaching the strain relief (J) to the outer half of the siderail control assembly (F).

8. Gently bend the connector (K) down against the siderail cable (G).

9. Push the connector (K) and the siderail cable (G) out of the outer half of the siderail control assembly (D).

10. Remove and discard the two halves of the siderail control assembly (D) and (B).

Replacement

1. Remove and save the center screw (C) from the new outer half of the siderail control assembly (D).

2. Insert the connector (K) and the siderail cable (G) into the outer half of the siderail control assembly (D).

3. Connect the connector (K) to the bottom socket (H) on the outer half of the siderail control assembly (D).

4. Connect the cable (E) into the top socket (F) of the outer half of the siderail control assembly (D).

5. Install the two halves of the siderail control assembly (D) and (B) around the post (L) on the siderail (M).

6. Install the five screws (C) to attach the two halves of the siderail control assembly (D) and (B) to the post (L).

7. Install the inner label (A) to the inner half of the siderail control assembly (B).

8. Connect the battery cable to the control board (refer to procedure 4.7 on page 4-16).

9. Connect the bed to the correct power source.
10. Do the “Function Checks” on page 2-2.

4.20 Siderail Control Cable

Tools required: Phillips head screwdriver
Wire cutters
8 mm nut driver, deep well

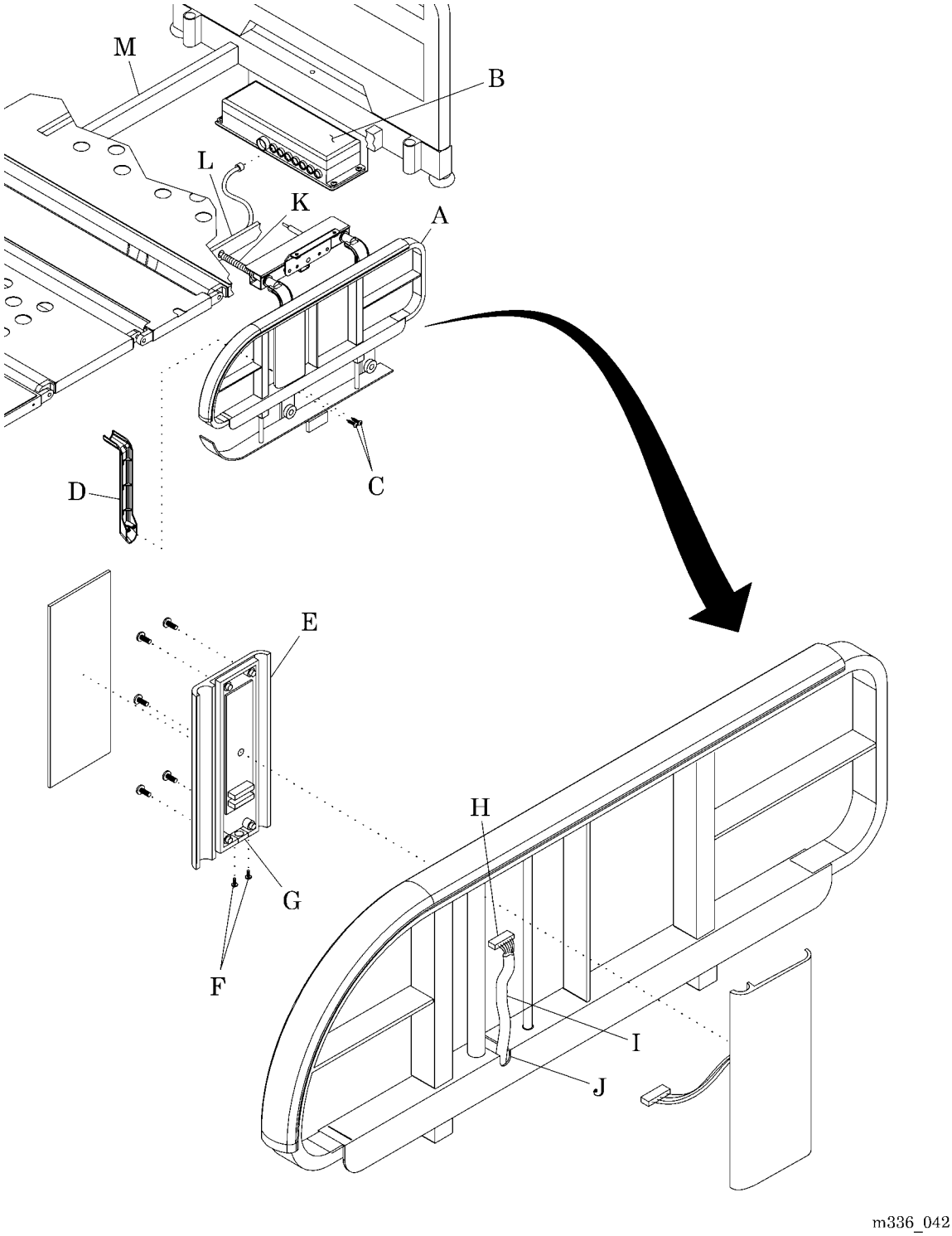
Removal

1. Raise the head section to its highest position.

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Disconnect the bed from its power source.
3. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).
4. Make a note showing the cable routing from the siderail (A) to the control box assembly (B) (see figure 4-20 on page 4-48).
5. Remove the two screws (C) attaching the wire cover (D) to the siderail (A).
6. Remove the siderail control assembly (E) (refer to procedure 4.19 on page 4-44).
7. Remove the two screws (F) attaching the strain relief (G) to the siderail control assembly (E) (see figure 4-20 on page 4-48).
8. Disconnect the connector (H) and carefully bend it down against the siderail cable (I).
9. Push the connector (H) and the siderail cable (I) through the strain relief (G) and out of the siderail control assembly (E).
10. Pull the siderail cable (I) through the notch (J) in the siderail (A).
11. Pull the spring strain relief (K) out of the bracket (L).

Figure 4-20. Siderail Control Cable



CAUTION:
Use caution when cutting wire ties. Failure to do so could result in cable damage.

12. Carefully cut all of the wires ties attaching the siderail cable (I) to the bed frame (M).

13. Disconnect the siderail cable (I) from the control box assembly (B).

Replacement

CAUTION:
Keep enough slack in the cables to allow the bed to move through its full range of motion without putting force on any of the cables. Failure to do so could result in equipment damage.

1. When routing the siderail cable (I), make sure it has enough slack for the bed to move through its full range of motion.

2. Route the siderail cable (I) from the control box assembly (B) to the siderail (A).

NOTE:
The connector will not fit through the bracket.

3. Do the removal procedure in the reverse order.

4. Do the “Function Checks” on page 2-2.

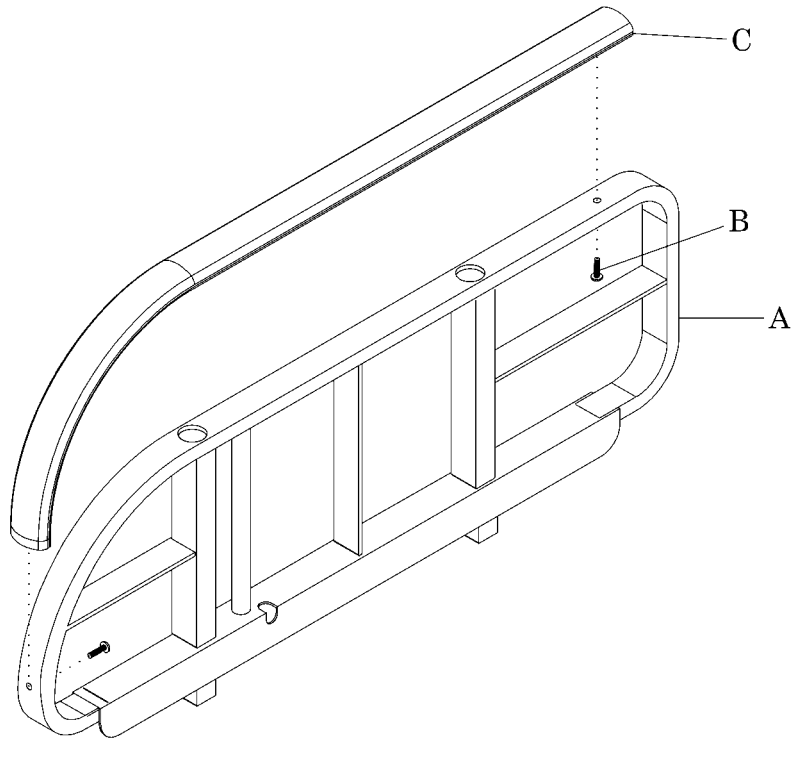
4.21 Siderail Top Cane

Tools required: Phillips head screwdriver

Removal

1. Raise the siderail (A) to its up and locked position (see figure 4-21 on page 4-50).
2. Remove the two screws (B) attaching the top cane (C) to the siderail (A).
3. Remove and discard the top cane (C).

Figure 4-21. Siderail Top Cane



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

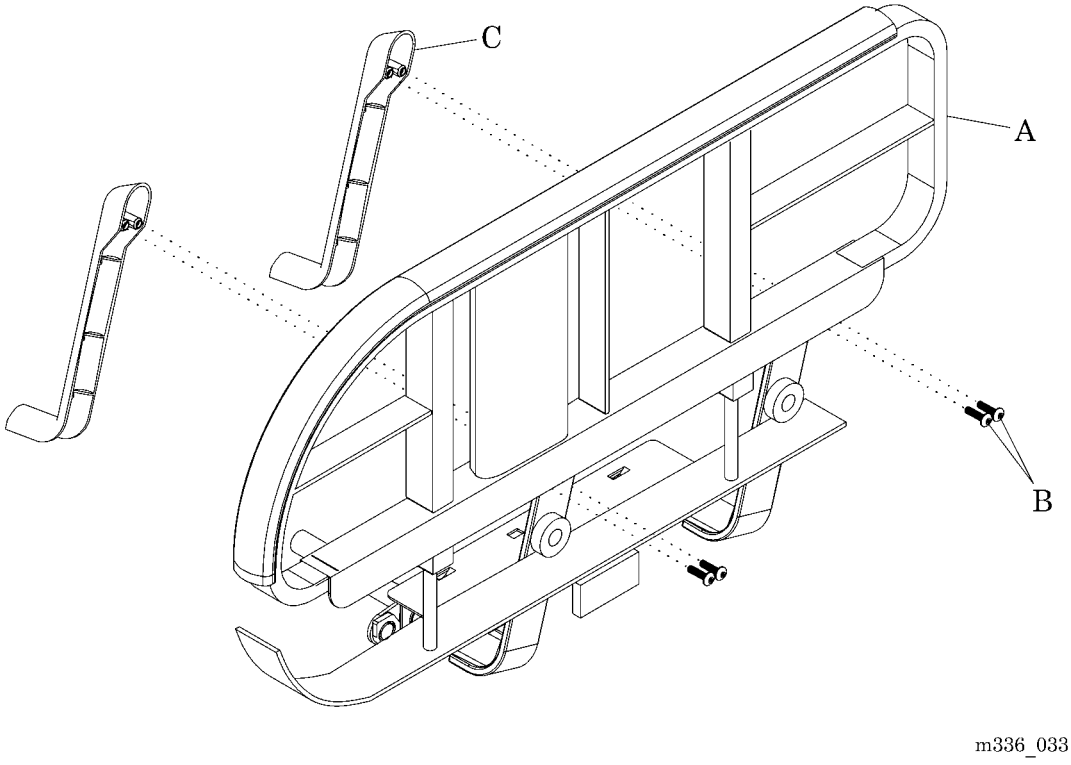
4.22 Siderail Wire Cover

Tools required: Phillips head screwdriver

Removal

1. Raise the siderail (A) to its up and locked position.
2. Remove the two screws (B) attaching the siderail wire cover (C) to the siderail (A).
3. Remove and discard the siderail wire cover (C) (see figure 4-22 on page 4-51).

Figure 4-22. Siderail Wire Cover



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

4.23 Central Brake and Steer—Caster Assemblies

Tools required: 2.5 mm Allen™[1] wrench
5 mm Allen™ wrench
13 mm nut driver
Rubber mallet
Bed frame jack
Caster blocks

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Disconnect the bed from its power source.

Remove the Foot End

WARNING:
Put caster blocks behind the casters at the opposite end of the bed. Failure to do so could result in personal injury.

1. Put caster blocks behind the casters at the head end.
2. Put the central brake and steer pedal in the neutral position.
3. Use a jack to lift the foot end of the bed off of the floor.
4. Remove the bolt (A) and washer (B) attaching the brake and steer caster (C) to the bed frame (D) (see figure 4-23 on page 4-53).
5. Remove the bolt (E) and washer (F) attaching the hex rod (G) to the bracket (H).
6. Loosen the setscrew (I) on the rocker arm (J).
7. Remove the hex rod (G) from the rocker arm (J).

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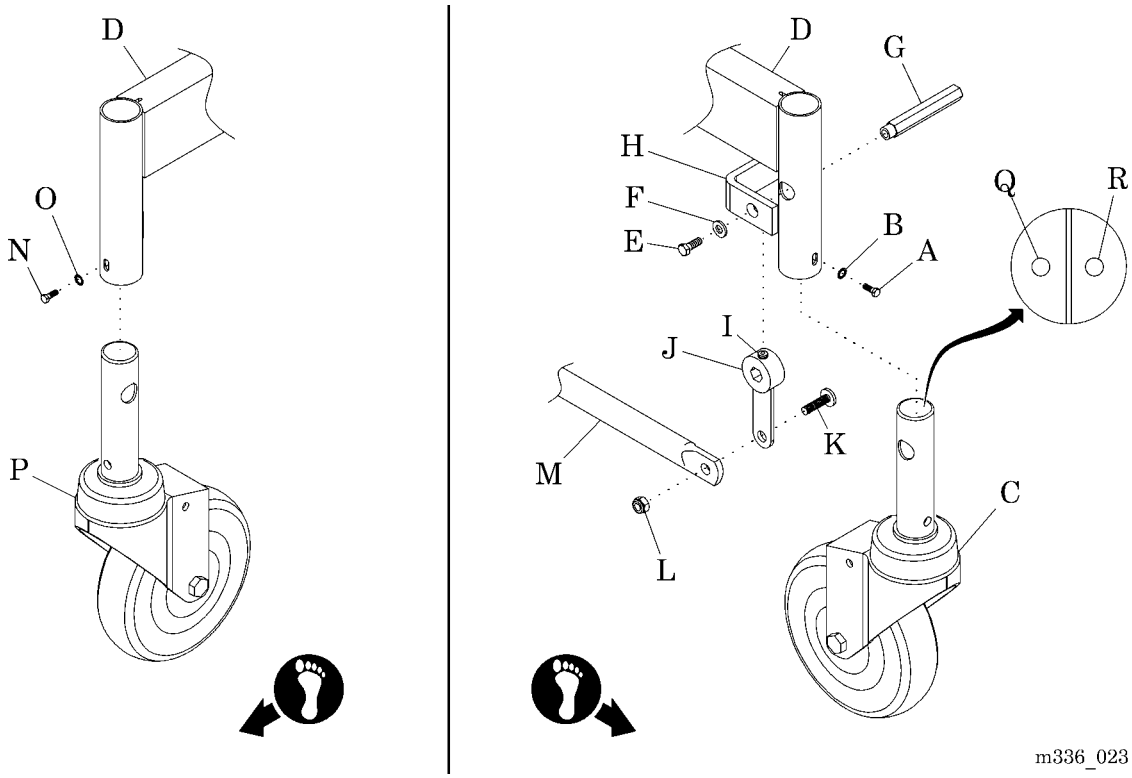
Figure 4-23. Central Brake and Steer—Brake and Steer and Swivel Caster Assemblies



NOTE:
As the hex rod is pushed through the caster, the caster will fall off the bed frame.

8. If necessary, remove the bolt (K) and nut (L) attaching the linkage (M) to the rocker arm (J).

9. Remove the bolt (N) and washer (O) attaching the swivel caster (P) to the bed frame (D).

10. Go to “Replace the Foot End” on page 4-55.

Remove the Head End

WARNING:
Put caster blocks behind the casters at the opposite end of the bed. Failure to do so could result in personal injury.

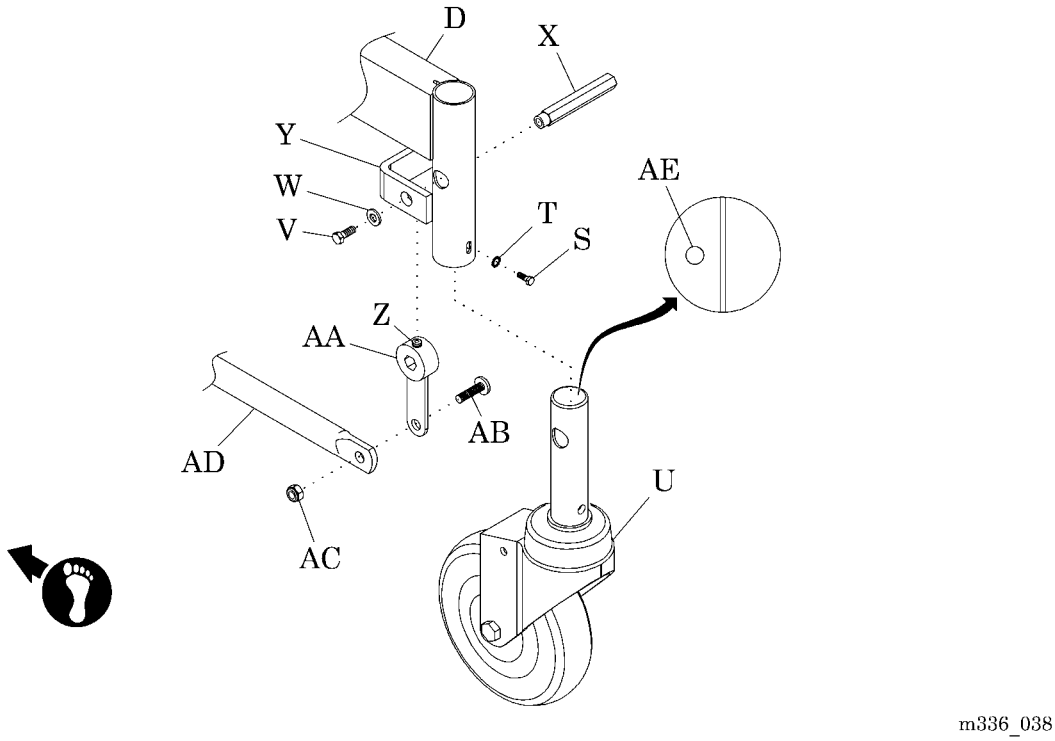
1. Put caster blocks behind the casters at the foot end of the bed.

2. Put the central brake and steer pedal in the neutral position.

3. Use a jack to lift the head end of the bed off of the floor.

4. Remove the bolt (S) and washer (T) attaching the brake caster (U) to the bed frame (D) (see figure 4-24 on page 4-54).

Figure 4-24. Central Brake and Steer—Brake Caster Assemblies



5. Remove the bolt (V) and washer (W) attaching the hex rod (X) to the bracket (Y).

6. Loosen the setscrew (Z) on the rocker arm (AA).

NOTE:
It is not necessary to remove the setscrews.

7. Remove the hex rod (X) from the rocker arm (AA).

8. If necessary, remove the bolt (AB) and nut (AC) attaching the linkage (AD) to the rocker arm (AA).

NOTE:
As the hex rod is pushed through the caster, the caster will fall off the bed frame.

9. Do step 4 through step 8 for the opposite caster assembly.

10. Go to “Replace the Head End” on page 4-56.

Replacement

Replace the Foot End

1. Make sure the caster is in the neutral or center position.

2. Install the brake and steer caster (C) in the bed frame (D) with the red dot (Q) on the left-hand side and the green dot (R) on the right-hand side (see figure 4-23 on page 4-53).

NOTE:
When left-hand and right-hand sides of the bed are identified, they are from the patient’s point of view.

CAUTION:
Make sure that a flat side of the hex rod is facing upward when it is installed. Failure to do so may result in the central brake and steer not operating correctly.

3. Push the hex rod (G) through the opening in the bed frame (D) and through the brake and steer caster (C).

4. Push the hex rod (G) through the rocker arm (I).

5. Push the hex rod (G) into the bracket (H) on the bed frame (D).

6. Install the bolt (A) and washer (B) to attach the brake and steer caster (C) to the bed frame (D).

7. Install the bolt (E) and washer (F) to attach the hex rod (G) to the bracket (H).

8. Install the bolt (K) and nut (L) to attach the linkage (M) to the rocker arm (J).

9. Tighten the setscrew (I) on the rocker arm (J).

10. Install the bolt (N) and washer (O) to attach the swivel caster (P) to the bed frame (D).

Replace the Head End

1. Make sure the caster is in the neutral or center position.

2. Install a brake caster (U) in the bed frame (D) with the red dot (AE) on the left-hand side (see figure 4-24 on page 4-54).

NOTE:
When left-hand and right-hand sides of the bed are identified, they are from the patient's point of view.

CAUTION:
Make sure that a flat side of the hex rod is facing upward when it is installed. Failure to do so may result in the central brake and steer not operating correctly.

3. Push the hex rod (X) through the opening in the bed frame (D) and through the brake caster (U).

4. Push the hex rod (X) through the rocker arm (AA).

5. Push the hex rod (X) into the bracket (Y) on the bed frame (D).

6. Install the bolt (S) and washer (T) to attach the brake caster (U) to the bed frame (D).

7. Install the bolt (V) and washer (W) to attach the hex rod (X) to the bracket (Y).

8. Install the bolt (AB) and the nut (AC) to attach the linkage (AD) to the rocker arm (AA).

9. Tighten the setscrew (Z) on the rocker arm (AA).

10. Do step 1 through step 9 for the opposite caster assembly.

11. Lower the bed to the floor.

12. Remove the caster blocks.

13. Do the "Function Checks" on page 2-2.

4.24 Central Brake and Steer—Pedal Assemblies

Tools required: 2.5 mm Allen™[1] wrench
5 mm Allen™ wrench
13 mm nut driver
Rubber mallet

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Disconnect the bed from its power source.

3. Put the central brake and steer pedals (A) in the neutral position (see figure 4-25 on page 4-58).

4. Remove the two screws (B) attaching the two pedals (A) to the hex rod (C).

5. Remove the two pedals (A) from the hex rod (C).

6. Loosen the two setscrews (D) attaching the two metal bushings (E) to the hex rod (C).

NOTE:
It is not necessary to remove the setscrews.

7. Remove the two metal bushings (E) and the two plastic bushings (F) from the hex rod (C).

8. Loosen the setscrews (G) in the two rocker arms (H).

9. Push the hex rod (C) completely out of the bed frame (I).

10. Remove the bolts (J) and nuts (K) attaching the two head linkages (L) and one foot linkage (M) to the two rocker arms (H).

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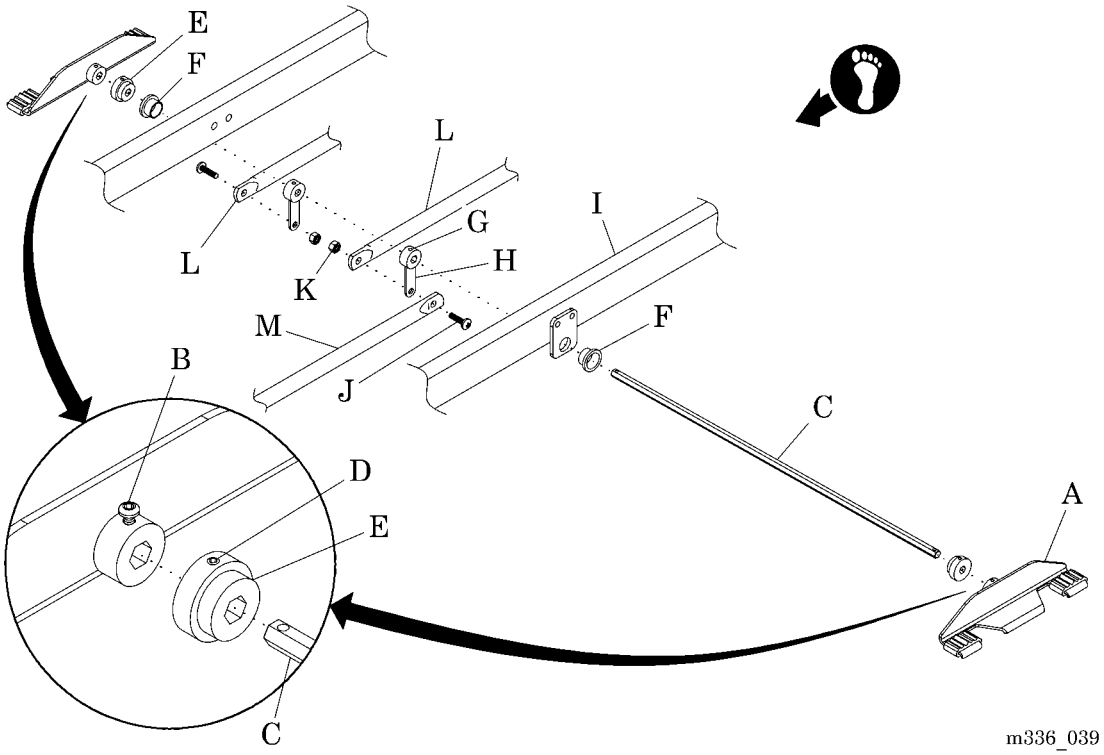
Figure 4-25. Central Brake and Steer—Pedal Assemblies



Replacement

CAUTION:
Make sure that a flat side of the hex rod is facing upward when it is installed. Failure to do so may result in the central brake and steer not operating correctly.

1. Make sure that a flat side of the hex rod is facing upward before it is installed.
2. Do the removal procedure in the reverse order.
3. Do the “Function Checks” on page 2-2.

4.25 Casters for Individual Brake and Steer

Tools required: Phillips head screwdriver
Caster blocks
Bed frame jack

Removal

1. Disconnect the battery cable from the control board (refer to procedure 4.7 on page 4-16).

SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

2. Disconnect the bed from its power source.

WARNING:
Put caster blocks behind the casters at the opposite end of the bed. Failure to do so could result in personal injury.

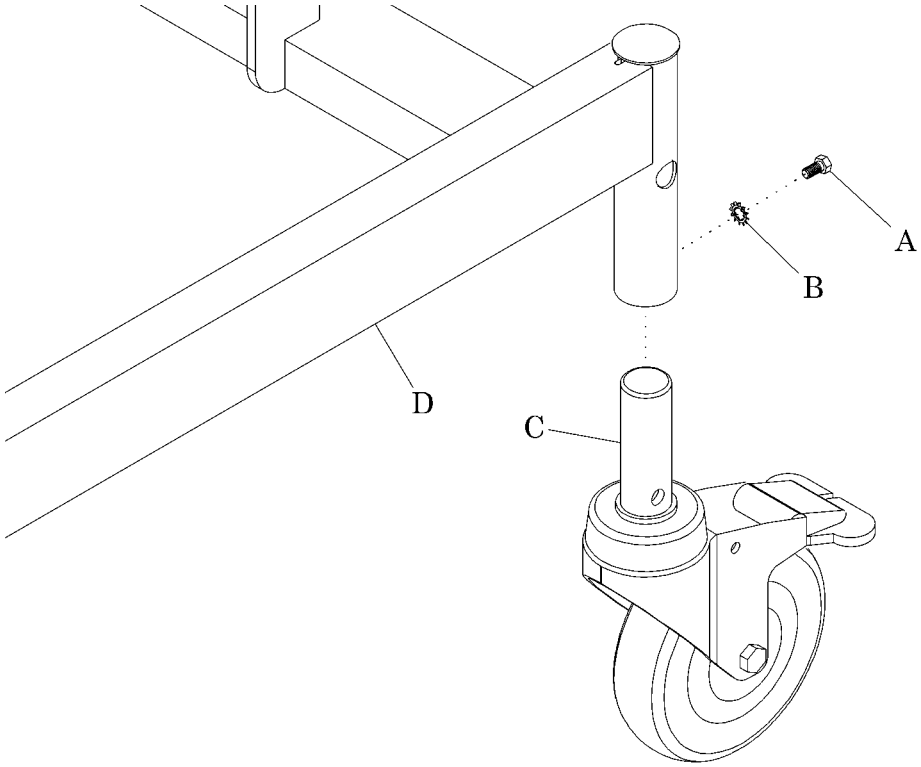
3. Put caster blocks behind the casters at the opposite end of the bed that you are working on.

4. Use a jack to lift the end of the bed you are working on off of the floor.

5. Remove the bolt (A) and washer (B) attaching the caster (C) to the bed frame (D) (see figure 4-26 on page 4-60).

6. Remove the caster (C) from the bed frame (D).

Figure 4-26. Casters for Individual Brake and Steer



Replacement

1. Do the removal procedure in the reverse order.
2. Do the “Function Checks” on page 2-2.

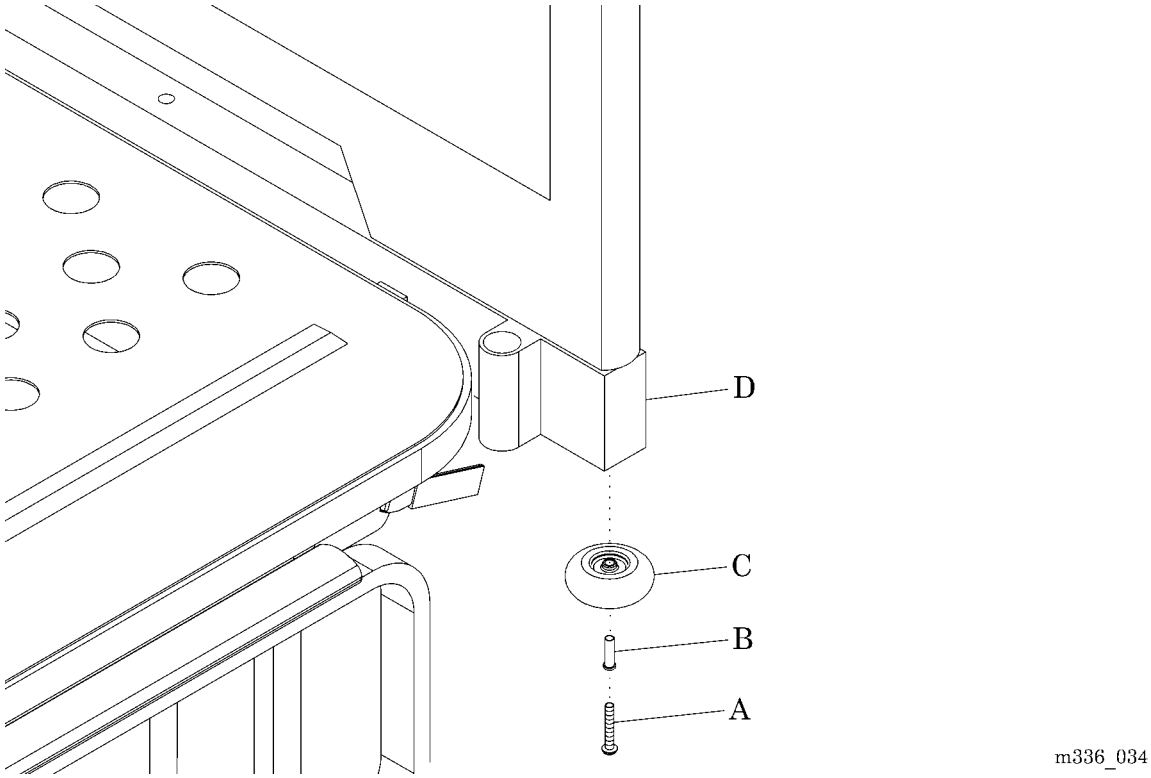
4.26 Bumper

Tools required: 5 mm Allen™[1] wrench

Removal

1. Raise the bed to its highest position.
2. Remove the screw (A) and bushing (B) attaching the bumper (C) to the bed frame (D) (see figure 4-27 on page 4-61).

Figure 4-27. Bumper



3. Remove the bumper (C) from the bed frame (D).

Replacement

1. Do the removal procedure in the reverse order.
2. Do the "Function Checks" on page 2-2.

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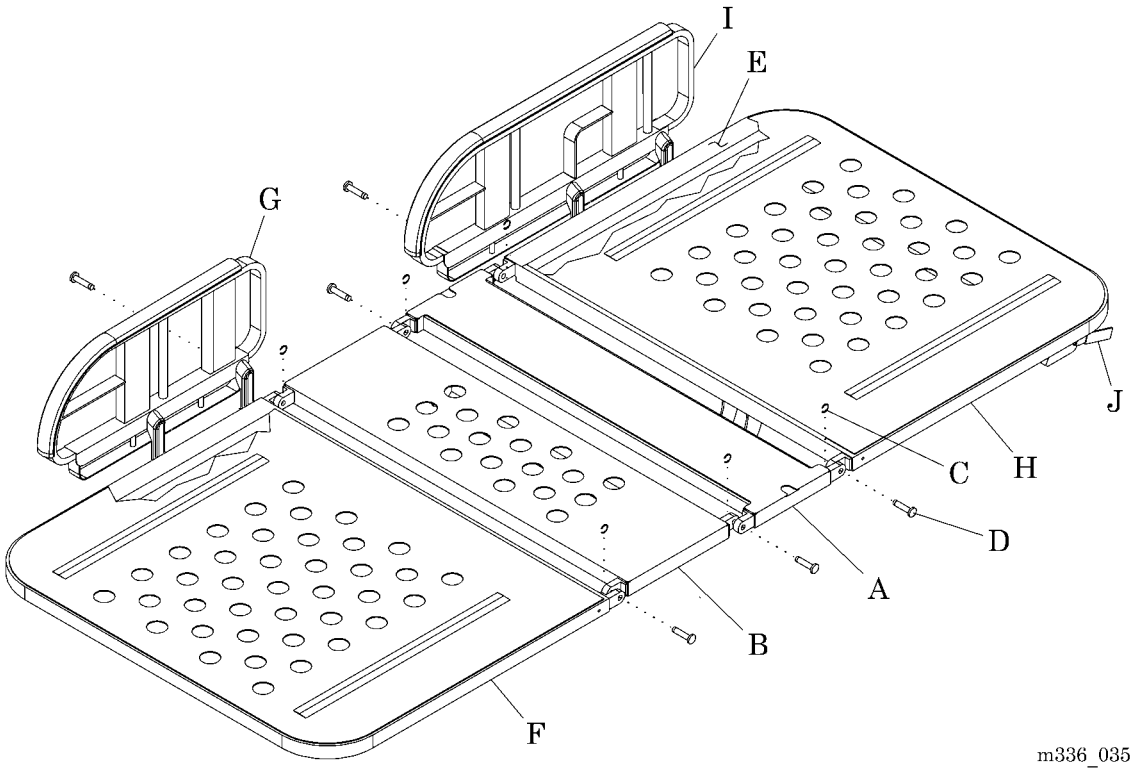
4.27 Sleep Surface Panels

Tools required: Screwdriver

Removal

1. Raise the bed to the highest position.
2. Lower the head and knee sections to their lowest positions.
3. If you are replacing a seat panel (A) or thigh panel (B), do the following (see figure 4-28 on page 4-62):
   a. Remove the four retaining rings (C) and four pins (D) attaching the panel (A) or (B) to the bed frame (E).
   b. Remove the panel (A) or (B) from the bed frame (E).

Figure 4-28. Sleep Panels



4. If you are replacing a foot panel (F), do the following:
   a. Remove the two footrails (G) from the bed frame (E) (refer to procedure 4.16 on page 4-37).

b. Remove the two retaining rings (C) and two pins (D) attaching the foot panel (F) to the bed frame (E) (see figure 4-28 on page 4-62).

c. Remove the foot panel (F) from the bed frame (E).

5. If you are replacing a head panel (H), do the following.

   a. Remove the two headrails (I) from the bed frame (E) (refer to procedure 4.16 on page 4-37).

   b. Remove the CPR handle assembly (J) from the bed frame (E) (refer to procedure 4.15 on page 4-35).

   c. Remove the two retaining rings (C) and two pins (D) attaching the head panel (H) to the bed frame (E) (see figure 4-28 on page 4-62).

   d. Remove the head panel (H) from the bed frame (E).

Replacement

1. Do the removal procedure in the reverse order.

2. Do the “Function Checks” on page 2-2.

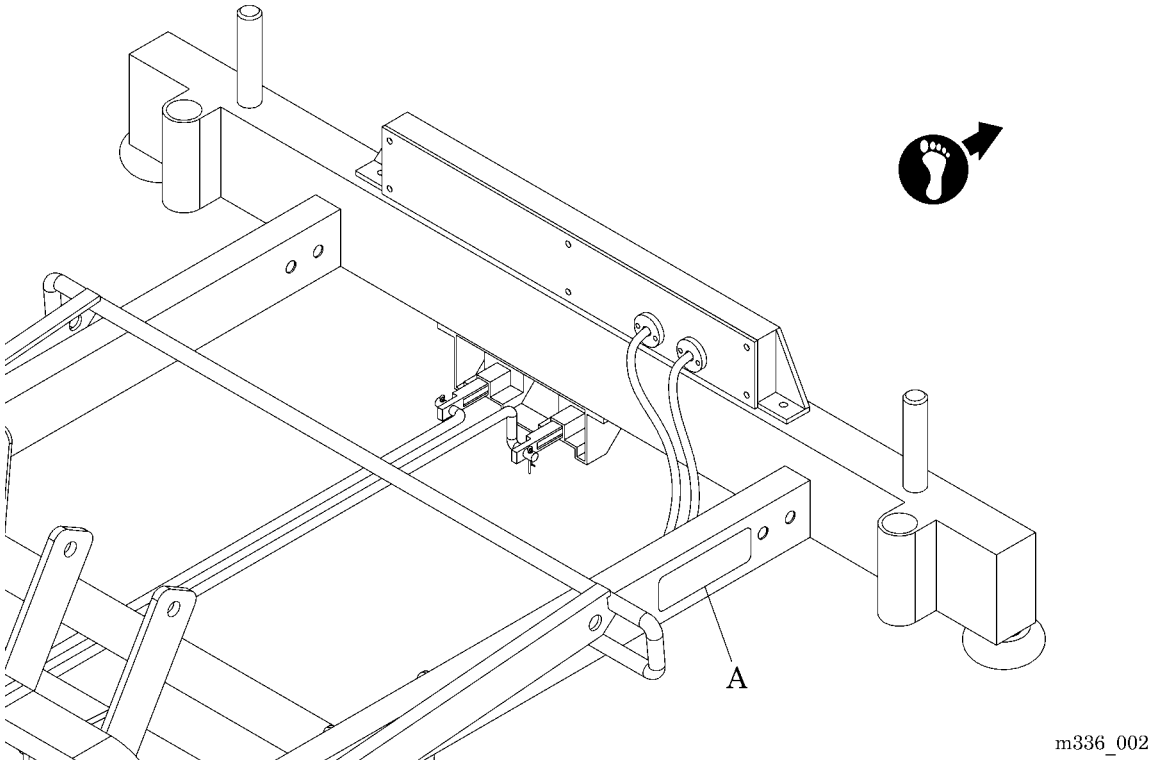
NOTES:

Chapter 5
Parts List

Service Parts Ordering

Using the parts lists in this manual, identify the necessary part number(s). Find the product number and serial number on the product identification label (A) (see figure 5-1 on page 5-1).

Figure 5-1. Product Identification Label Location



5

Call Hill-Rom Technical Support at 1-812-934-1796 with the following data:

- Six-digit customer account number
- Purchase order number
- Model number
- Serial number
- Part number(s)

To promptly order parts, request part prices and availability, or follow up on a service order, use the following Hill-Rom fax number:

812-934-8472

Terms:

- Net 60 days
- F.O.B. Batesville, IN
- Prepaid shipping charges added to invoice
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1069 STATE ROUTE 46 E
BATESVILLE IN 47006-9167

Address all return goods to:

ATTN SERVICE STORES
DISTRIBUTION CENTER DOOR D23
HILL-ROM COMPANY, INC.
COUNTY ROAD 300E
BATESVILLE IN 47006-9167

NOTE:
To eliminate possible delays or incorrect billings, **do not** return any items without a Return Material Authorization (RMA) number. When a return is requested, an RMA packet is included with each order. This packet includes an RMA number, instructions, and a shipping label. If an RMA number is not available, get one by calling Hill-Rom Technical Support at 1-812-934-1796.

Exchange Policy

The following are policies for in-warranty and out-of-warranty exchanges from Hill-Rom.

In-Warranty Exchanges

In some cases, Hill-Rom will request that parts/products be returned for inspection. When this occurs, you are expected to return parts/products within 30 days of receipt of the exchange part. If you fail to return the inoperative parts/products within the 30 day period, Hill-Rom will invoice your facility for the full selling price of the parts/products.

NOTE:
The preceding billing procedure pertains **only** to parts/products that Hill-Rom requests to be returned.

In some cases, the invoice accompanying the parts will show the full selling price (only for internal use at Hill-Rom). Do not confuse this price with your price.

Do not return any parts without an RMA number. When parts/products have been requested to be returned, Hill-Rom will include an RMA packet with the parts/products shipment. If an RMA number is not available, get one by phoning Hill-Rom Technical Support at 1-812-934-1796.

Out-of-Warranty Exchanges

You are expected to return the inoperative parts/products within 30 days of receipt of the exchange part. Hill-Rom will include an RMA packet with the parts/products shipment. If an RMA number is not available, get one by phoning Hill-Rom Technical Support at 1-812-934-1796. Hill-Rom will invoice your facility for the full selling price of the parts/products. Upon return of the inoperative parts/products, Hill-Rom will issue a credit to your facility for **the difference between the exchange price and the full selling price of the parts/products**.

NOTES:

Warranty

BASIC CARE™ BED(s)
LIMITED WARRANTY

Hill-Rom Company, Inc. (Hill-Rom) has a long tradition of providing superior products and service to our customers. Our goal is "Total Customer Satisfaction". In that spirit, Hill-Rom is proud to offer the following warranty.

GENERAL WARRANTY (APPLICABLE UNLESS A SPECIFIC WARRANTY IS LISTED)

Hill-Rom warrants to the original purchaser that its Basic Care™ Beds(s) shall be free from defects in material and workmanship for a period of one (1) year from date of delivery. Hill-Rom's obligation under this warranty is expressly limited to supplying replacement parts and/or service for, or replacing, at its option, any product which is, in the sole discretion of Hill-Rom, found to be defective. In addition to the foregoing one year warranty, Hill-Rom warrants to the original purchaser that the frame and welds on its products will be free from structural defects for the life of the product. Any product upgrade or modification initiated by Hill-Rom does not affect the original product warranty.

SPECIFIC WARRANTIES

MATTRESS WARRANTIES

Hill-Rom warrants to the original purchaser that its mattress product shall be free from defects in material and workmanship for a period of two (2) years from date of delivery. However, electro mechanical mattress components (compressors, valves, printed circuit boards, hoses, and couplers) are covered by the general one (1) year warranty.

EXPENDABLES WARRANTIES

A sixty (60) day limited warranty from date of delivery applies to expendable parts such as cushions, coverlets, software diskettes, locator badge batteries, dome light incandescent bulbs, overhead fluorescent tubes, heating elements, temperature probes, filter sheets, and microspheres. This warranty is limited to replacement of the parts covered.

TO OBTAIN PARTS AND SERVICE

In the United States, call Hill-Rom Technical Support Department at (800) 445-3720, Monday through Friday. In Canada, call Hill-Rom Technical Support Department at (800) 267-2337, Monday through Friday. Outside the United States and Canada, call your authorized Hill-Rom Distributor. In order to expedite service, we request you furnish the following information: customer identification number, product model number, serial number, and description of problem. A qualified specialist will provide, via telephone (United States and Canada), or FAX (Outside the United States and Canada), troubleshooting assistance for facility personnel and provide necessary parts to make repairs. If troubleshooting determines the need for on-site technical service, a qualified service representative will be dispatched. Replacement of non-technical items will be the responsibility of the customer. If requested by Hill-Rom, products or parts for which a warranty claim is made shall be returned prepaid to Hill-Rom's factory.

OUT OF WARRANTY EXCHANGE POLICY

After the expiration of the original warranty, upon request, Hill-Rom will ship as a replacement, components such as selected: motors and printed circuit boards, for like units returned to Hill-Rom by the original purchaser at a substantial savings. Please call Hill-Rom Technical Support Department for current pricing.

PARTS AVAILABILITY POLICY

Hill-Rom will offer parts for new and remanufactured products for five (5) years from date of sale; for communications products for five (5) years from date of sale.

Note: Some original component parts and assemblies may not be available; functional equivalents may be substituted.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE. HILL-ROM'S OBLIGATION UNDER THESE WARRANTIES SHALL NOT INCLUDE ANY LIABILITY FOR LOSS OF PROFITS, DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES OR DELAYS. Some states, provinces, or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply. Any improper or negligent use, any alterations or repairs not in accordance with Hill-Rom's manuals or performed by others in such manner as in Hill-Rom's sole judgment affects the product materially and adversely, shall void these warranties. These warranties do not cover failures due to misuse, abuse, neglect, or lack of routine maintenance. No employee or representative of Hill-Rom is authorized to change these warranties in any way or grant any other warranty unless in writing and signed by a Hill-Rom officer. These warranties provide specific legal rights; but, there may be other available rights, which vary from state to state, province to province, or country to country.

Revised May 5, 2004 war022

Hill-Rom Company, Inc., 1069 State Route 46 E, Batesville, IN 47006-9167

5

Recommended Spare Parts

See table 5-1 on page 5-6 for a recommended spare parts list to service five units or more.

Table 5-1. Recommended Spare Parts

Part Number	Quantity	Description
131491	10	Fuse set, 120 V
131492	10	Fuse set, 230 V
131489	2	Head drive assembly
131487	2	Knee drive assembly
131488	2	Hi-lo drive assembly
131422	2	Manual foot mod—Basic Care
131520	2	Control box assembly[a],100 V
131521	2	Control box assembly[a],110 V - 115 V
131522	2	Control box assembly[a],120 V - 127 V
131523	2	Control box assembly[a],220 V - 230 V
131524	2	Control box assembly[a],240 V
131493	2	Head/foot board assembly
131480	2	Head siderail assembly, right-hand
131482	2	Head siderail assembly, left-hand
131484	2	Foot siderail assembly, right-hand
131486	2	Siderail assembly, foot, left-hand
131438	2	Trendelenburg assembly, short length
131437	2	Trendelenburg assembly, standard length
131433	2	Brake/steer caster (central brake and steer)
131430	2	Swivel caster (central brake and steer)
131432	4	Brake caster (central brake and steer)
131429	4	Individual brake caster
131434	2	Individual brake/steer caster
131501	5	Power cord[b], CG 1, 15 (Bolivia, Brazil, Indonesia, South Korea, Vietnam, Egypt, Paraguay, Turkey, and St. Vincent & The Grenadines)

Part Number	Quantity	Description
131502	5	Power cord[b], CG 2, 16, 18 (Brunei, Hong Kong, Indonesia, Malaysia, Singapore, Vietnam, Oman, Bahrain, Yemen, United Arab Emirates, Kuwait, Macau, St. Kitts & Nevis, St. Lucia, and Iraq)
131503	5	Power cord[b], CG 3, 14, 17 (Bahamas, Belize, Bermuda, Brazil, Cayman Islands, Colombia, Costa Rica, Ecuador, Thailand, Venezuela, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Peru, Philippines, U.S. Virgin Islands, Lebanon, Mexico, Saudi Arabia, Aruba, Antigua Barbuda, and British Virgin Islands)
131504	5	Power cord[b], CG 4, 19 (Australia, and New Zealand)
131505	5	Power cord[b] CG 5 (Chile, Uruguay and Syria)
131506	5	Power cord[b], CG 6 (Japan)
131507	5	Power cord[b], CG 7 (Taiwan)
131508	5	Power cord[b], CG 8 (China)
131509	5	Power cord[b], CG 9 (Argentina)
131510	5	Power cord[b], CG 10, 20 (India and Pakistan)
131511	5	Power cord[b], CG 11 (Jordan)
131512	5	Power cord[b], CG 12 (South Africa)

a. Order control box assemblies according to your facility's specifications.
b. Order power cords according to your facility's specifications.

Base Frame

Figure 5-2. Base Frame

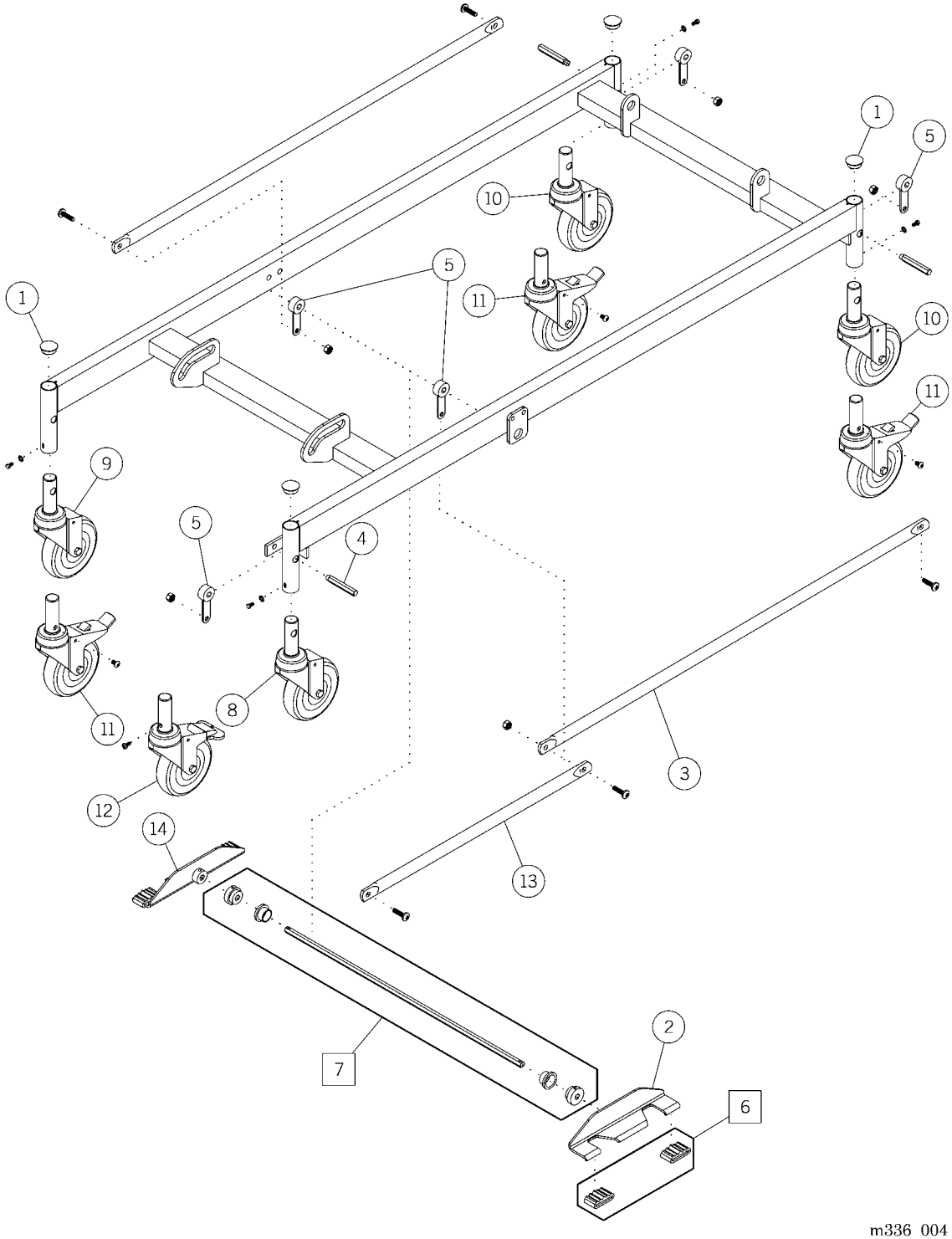


Table 5-2. Base Frame

Item Number	Part Number	Quantity	Description
1	131439	4	Caster hole covers
2	131427	2	Central brake and steer pedal assembly, left-hand
3	131424	2	Brake/steer linkage, head end
4	not available	3	Caster hex rod
5	131421	5	Rocker arm assembly—Basic Care
6	131467	2	Brake/steer pedal pad set
7	131425	1	Brake/steer hex rod (center)
8	131433	1	Brake/steer caster (central brake and steer)
9	131430	1	Swivel caster (central brake and steer)
10	131432	2	Brake caster (central brake and steer)
11	131429	3	Individual brake caster
12	131434	1	Individual brake/steer caster
13	131423	1	Brake/steer linkage, foot end
14	131426	2	Central brake and steer pedal assembly, right-hand

Upper Frame for the Electric Model Basic Care™ Bed

Figure 5-3. Upper Frame for the Electric Model Basic Care™ Bed

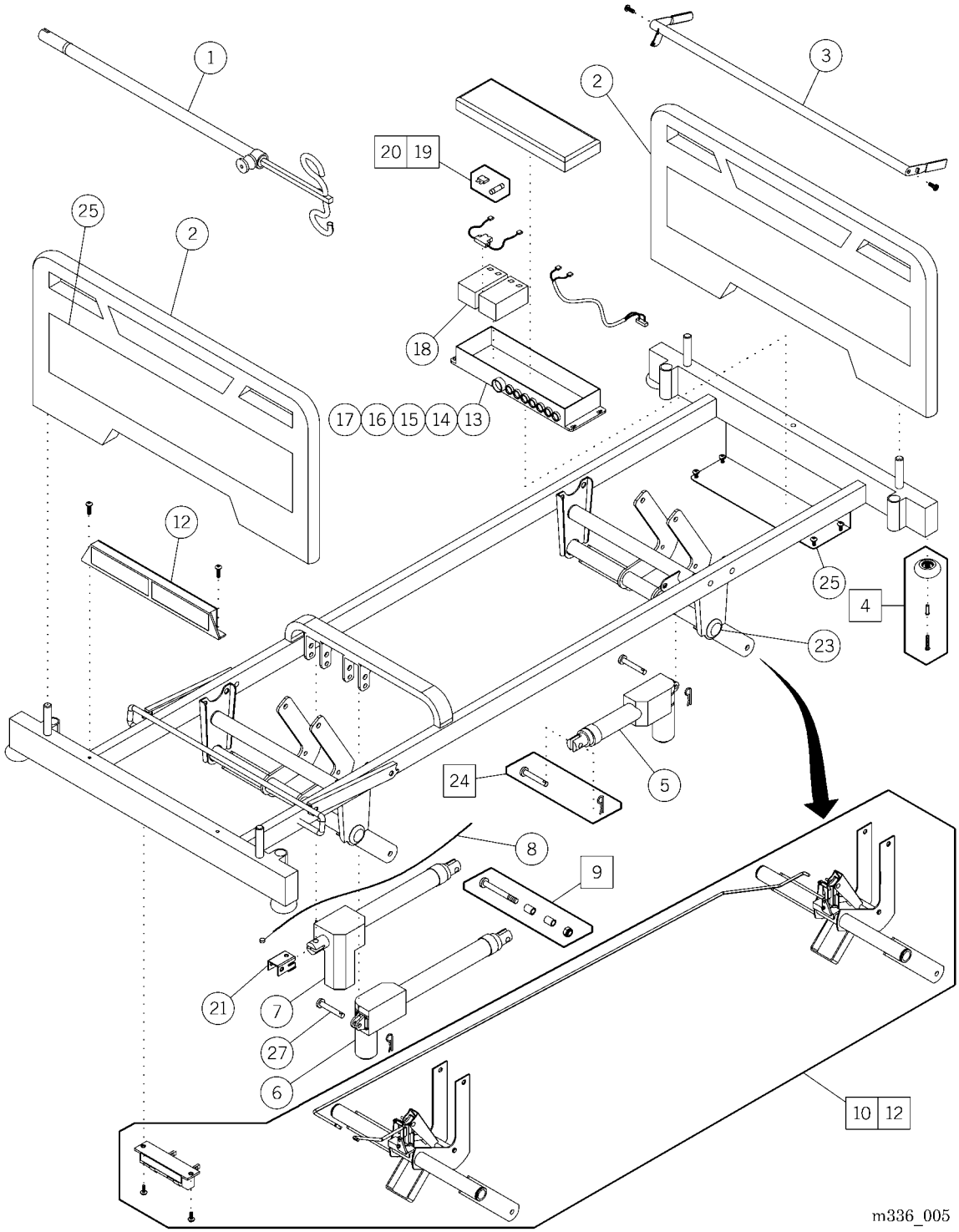


Table 5-3. Upper Frame for the Electric Model Basic Care™ Bed

Item Number	Part Number	Quantity	Description
1	P1445	1	IV pole, Basic Care
2	131493	2	Head/foot board assembly
3	131475	1	CPR assembly (handles)
4	131440	4	Bumper assembly
5	131487	1	Knee drive assembly
6	131488	1	Hi-lo drive assembly
7	131489	1	Head drive assembly
8	131668	1	CPR cable set
9	131495	1	Bolt assembly, hilo drive
10	131438	2	Trendelenburg assembly, short length (as applicable)
11	131437	2	Trendelenburg assembly, standard length (as applicable)
12	131526	1	Control panel, foot end
13	131520	1	Control box assembly, 100 V
14	131521	1	Control box assembly,110 V -115 V
15	131522	1	Control box assembly,120 V - 127 V
16	131523	1	Control box assembly, 220 V - 230 V
17	131524	1	Control box assembly, 240 V
18	1331490	2	Battery, control box (includes 2 batteries)
19	131491	1	Fuse set, 120 V
20	131492	1	Fuse set, 230 V
21	131671	1	Bracket, head drive
22	131494	4	Laminate, head/foot board
23	131435	4	Trendelenburg indicator
24	131670	5	Pin, actuator
25	131525	1	Bracket, control box

Upper Frame for the Manual Model Basic Care™ Bed

Figure 5-4. Upper Frame for the Manual Model Basic Care™ Bed

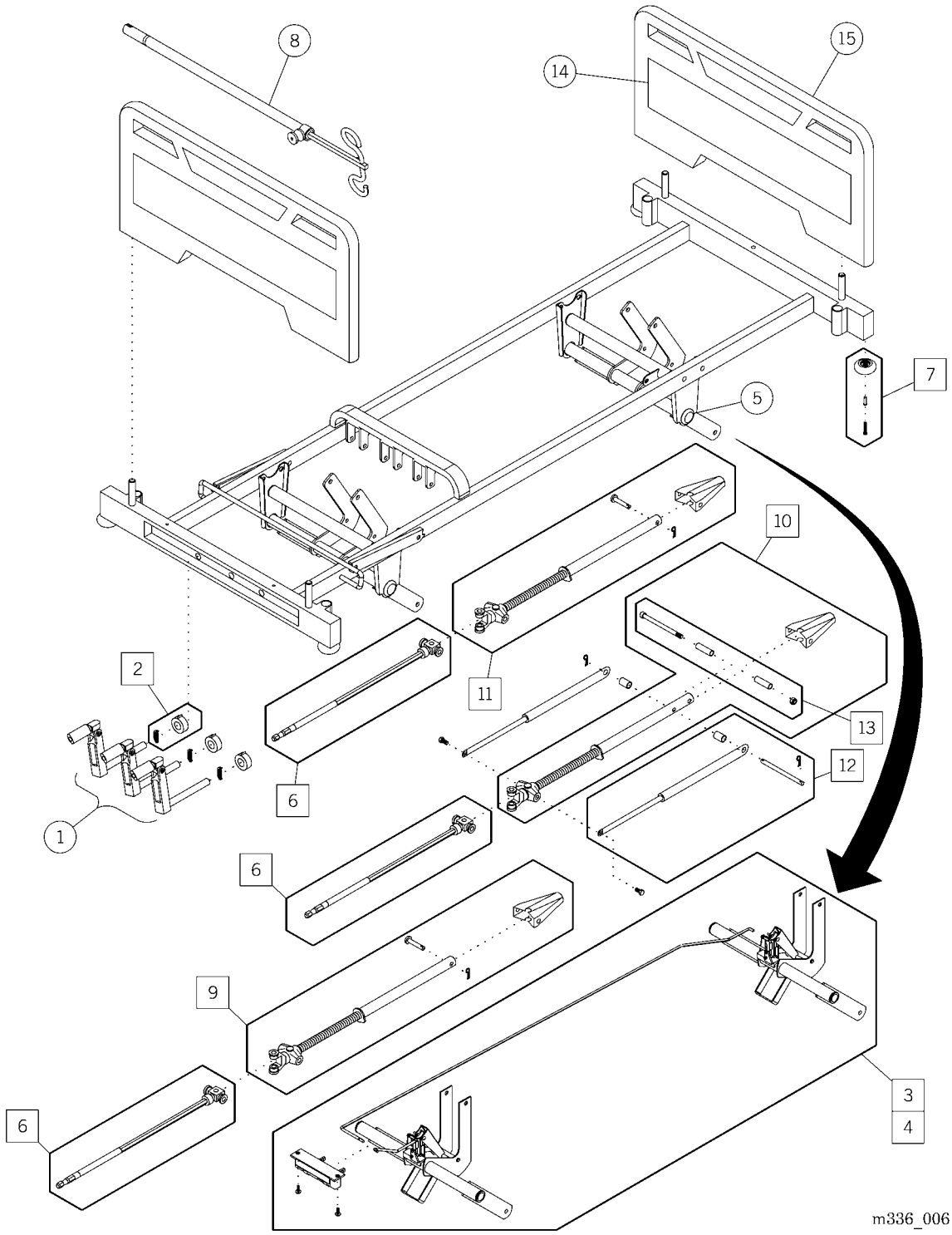


Table 5-4. Upper Frame for the Manual Model Basic Care™ Bed

Item Number	Part Number	Quantity	Description
1	131422	1	Manual foot mod—Basic Care (includes labels)
2	131466	3	Spring, manual crank assembly
3	131438	1	Trendelenburg assembly, short length (as applicable)
4	131437	1	Trendelenburg assembly, standard length (as applicable)
5	131435	4	Trendelenburg indicator
6	131497	3	Connecting rod, manual
7	131440	4	Bumper assembly
8	P1445	1	IV pole, Basic Care
9	131500	1	Shaft, knee
10	131498	1	Shaft, hilow
11	131496	1	Shaft, head
12	131499	2	Springs, hilow
13	131495	1	Bolt assembly, hi-lo drive
14	131494	4	Laminate, head/foot board
15	131493	2	Head/foot board assembly

Siderails

Figure 5-5. Siderails

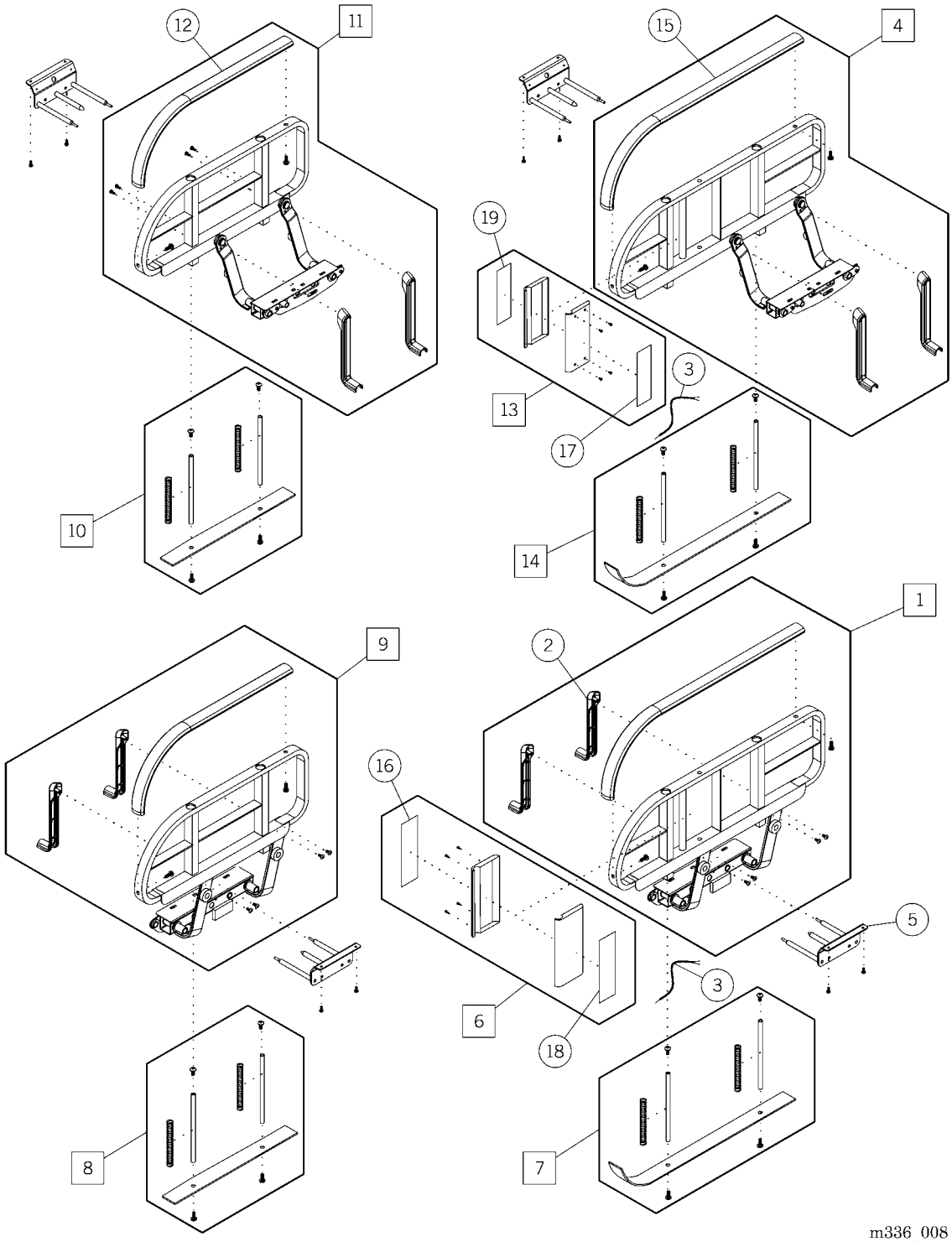


Table 5-5. Siderails

Item Number	Part Number	Quantity	Description
1	131480	1	Head siderail assembly, right-hand
2	131478	8	Wire cover
3	131513	2	Siderail control cable
4	131482	1	Head siderail assembly, left-hand
5	131669	4	Siderail bracket
6	131515	1	Control module, patient left
7	131483	1	Siderail retraction bar assembly, head, left-hand
8	131673	1	Siderail retraction bar assembly, foot, left-hand
9	131486	1	Siderail assembly, foot, left-hand
10	131485	1	Siderail retraction bar assembly, foot, right-hand
11	131484	1	Foot siderail assembly, right-hand
12	131477	2	Top cane, foot siderail
13	131516	1	Control module, patient right
14	131481	1	Siderail retraction bar assembly, head, right-hand
15	131476	2	Top cane, head siderail
16	131518	1	Control label, patient side, left-hand
17	131516	1	Control label, patient side, right-hand
18	131519	1	Control label, caregiver side, left-hand
19	131517	1	Control label, caregiver side, right-hand
Not shown	131672	1	Siderail control label set (includes items: 16, 17, 18 and 19)

Power Cord

Figure 5-6. Power Cord

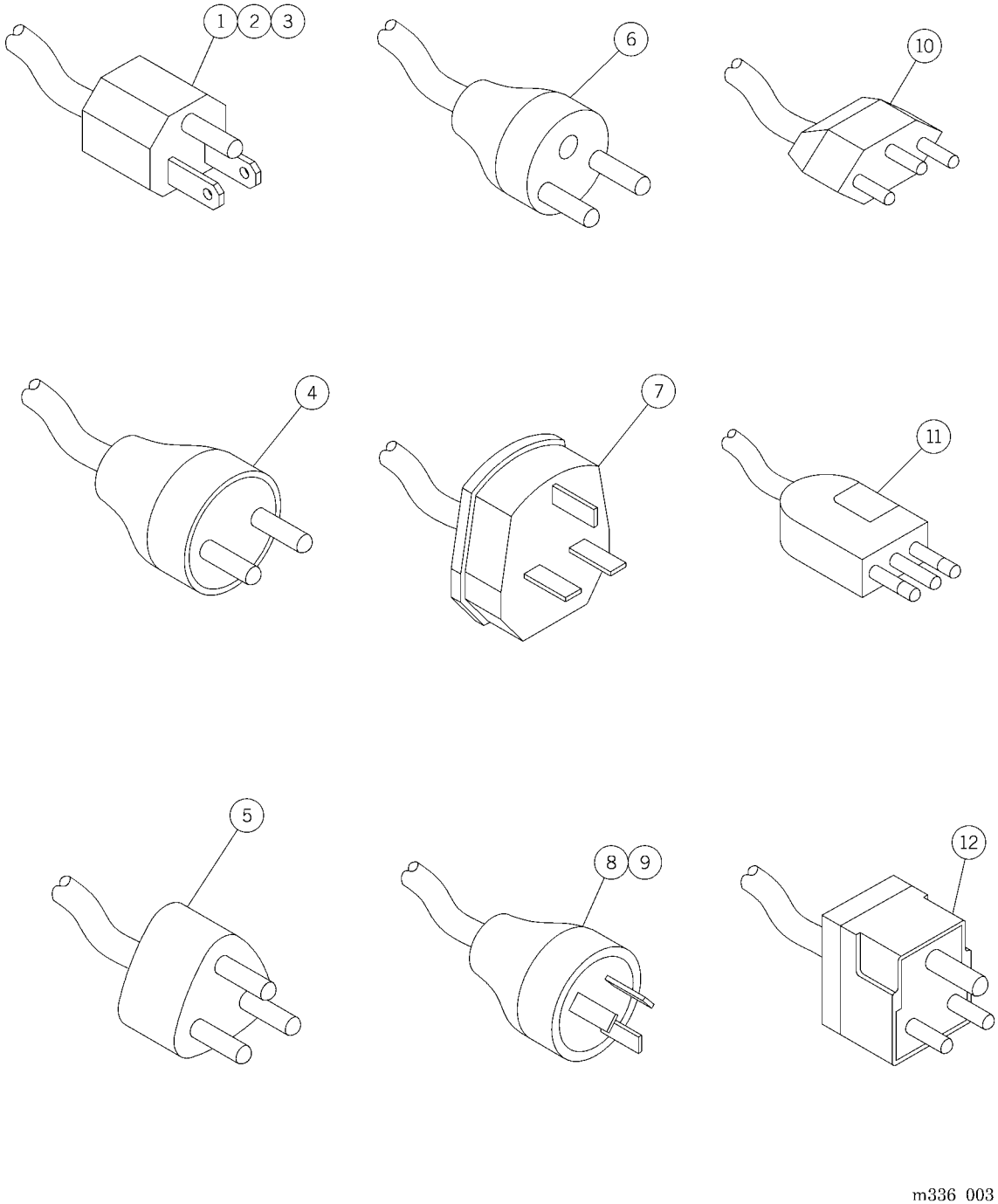


Table 5-6. Power Cord

Item Number	Part Number	Quantity	Description
1	131503	1	Power cord, CG 3, 14, 17 (Bahamas, Belize, Bermuda, Brazil, Cayman Islands, Colombia, Costa Rica, Ecuador, Thailand, Venezuela, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, Peru, Philippines, U.S. Virgin Islands, Lebanon, Mexico, Saudi Arabia, Aruba, Antigua Barbuda, and British Virgin Islands)
2	131506	1	Power cord, CG 6 (Japan)
3	131507		Power cord, CG 7 (Taiwan)
4	131509	1	Power cord, CG 9 (Argentina)
5	131510	1	Power cord, CG 10, 20 (India and Pakistan)
6	131501	1	Power cord, CG 1, 15 (Bolivia, Brazil, Indonesia, South Korea, Vietnam, Egypt, Paraguay, Turkey, and St. Vincent & The Grenadines)
7	131502	1	Power cord, CG 2, 16, 18 (Brunei, Hong Kong, Indonesia, Malaysia, Singapore, Vietnam, Oman, Bahrain, Yemen, United Arab Emirates, Kuwait, Macau, St. Kitts & Nevis, St. Lucia, and Iraq)
8	131504	1	Power cord, CG 4, 19 (Australia, and New Zealand)
9	131508	1	Power cord, CG 8 (China)
10	131511	1	Power cord, CG 11 (Jordan)
11	131505	1	Power cord, CG 5 (Chile, Uruguay and Syria)
12	131512	1	Power cord, CG 12 (South Africa)

Sleep Surface

Figure 5-7. Sleep Surface

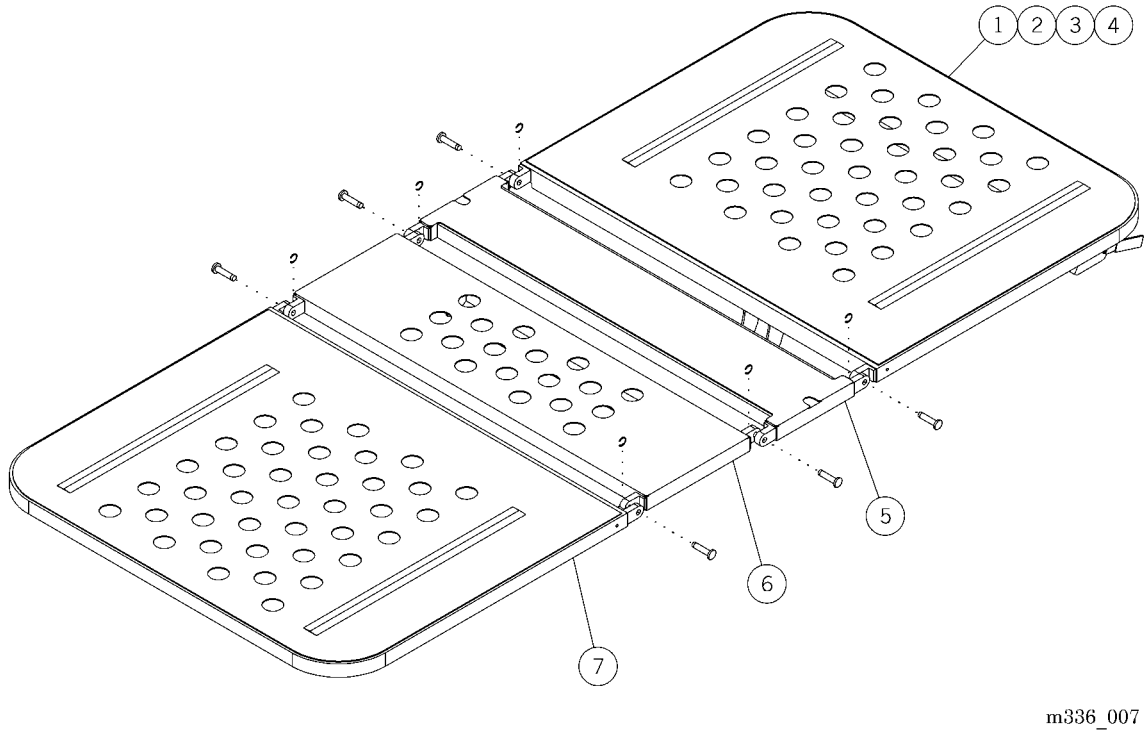


Table 5-7. Sleep Surface

Item Number	Part Number	Quantity	Description
1	131469	1	Head panel, electric, standard length
2	131470	1	Head panel, electric, short length
3	131471	1	Head panel, manual, standard length
4	131472	1	Head panel, manual, short length
5	131441	1	Seat panel
6	131473	1	Knee panel
7	131474	1	Foot panel
Not shown	131468	2	Pad, foot section

Chapter 6
General Procedures

Cleaning and Care

WARNING:
Obey the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

SHOCK HAZARD:
The potential for electrical shock exists with electrical equipment. Failure to follow facility protocols may result in death or serious injury personal injury.

SHOCK HAZARD:
Disconnect the unit from its power source. Failure to do so could result in personal injury or equipment damage.

SHOCK HAZARD:
Do not expose the unit to excessive moisture. Personal injury or equipment damage could occur.

CAUTION:
Do not use harsh cleansers/disinfectants such as scouring pads, heavy duty grease removers, solvents such as toluene, xylene, or acetone. Equipment damage could occur.

General Cleaning

Clean the unit with a lightly dampened cloth and ordinary disinfectants. Do not use excessive liquid.

Steam Cleaning

Do not use any steam cleaning device on the Basic Care™ Bed. Excessive moisture can damage mechanisms and components in this unit.

Hard to Clean Spots

To remove difficult spots or stains, use standard household cleaners and a soft bristle brush. To loosen heavy, dried-on soil or excreta, it may be necessary to first saturate the spot.

Disinfecting

Dilute disinfectants and germicides as specified on the manufacturer's label.

Component Handling

CAUTION:
Make sure that your hands are clean, and **only** handle the P.C. boards by their edges to prevent component damage.

CAUTION:
Wear an antistatic strap when handling electronic components. Failure to do so could result in component damage.

CAUTION:
Put the removed P.C. boards in antistatic protective bags for shipping and storage. Equipment damage can occur.

P.C. Board

Be careful with the P.C. board when servicing it, or the following may occur:

- P.C. board damage
- Shortened P.C. board life
- Unit malfunctions

When servicing the P.C. board do the following:

- Make sure hands are clean and free of moisture, oily liquids, etc.
- **Only** handle the P.C. board by its outer edges.
- Do not touch the P.C. board components. Finger contact with the board surface and/or with its components can leave a deposit that will result in board (and component) deterioration.
- When working with electronics, wear an appropriate antistatic strap, and make sure it is correctly grounded.
- Service the removed P.C. board at a static-free workstation that is correctly grounded.
- For shipping and storage, place the removed P.C. board in an antistatic protective bag.

Lubrication Requirements

WARNING:
Obey the product manufacturer's instructions. Failure to do so could result in personal injury or equipment damage.

CAUTION:
Do not use silicone-based lubricants. Equipment damage could occur.

Oilite®[1] bearings and bushings are utilized in several places on the system. By retaining oil, the pores give a self-lubricating quality to the bearings and bushings. If any silicone-based lubricant is applied to the bearings and bushings or anywhere else on the system, this self-lubricating quality is neutralized.

It is safe to apply the following lubricants to the system (see table 6-1 on page 2-3):

Table 6-1. Lubricants

Part Number	Description
8252 (1400)	Non-detergent SAE30 weight oil (apply to Oilite® bearings and bushings)
SA3351 (1400)	4 oz lithium grease

1. Oilite® is a registered trademark of Beemer Precision, Incorporated.

Part Number	Description
SA3352 (1400)	Gear grease (use on motor gears only)
SA0646 (1400)	Teflon®[a] lubricant (dry)

a. Teflon® is a registered trademark of E.I. du Pont de Nemours and Company.

Preventive Maintenance

WARNING:
Only facility-authorized personnel should service the Basic Care™ Bed. Servicing by unauthorized personnel could result in personal injury or equipment damage.

It is necessary for the Basic Care™ Bed to have an effective maintenance program. We recommend that you do annual preventive maintenance (PM) and testing for Joint Commission on Accreditation of Healthcare Organizations (JCAHO). PM and testing not only meet JCAHO requirements but will help make sure of a long, operative life for the Basic Care™ Bed. PM will minimize downtime due to excessive wear.

The following PM schedule guides you through a normal PM procedure on the Basic Care™ Bed. During this PM process, check each item on the schedule, and make the necessary adjustments.

Follow the PM schedule with the corresponding PM checklist. This checklist is designed to keep a running maintenance history and subsequent repair costs for one Basic Care™ Bed. However, your facility can change this checklist or design another if necessary. Keeping close records and maintaining the Basic Care™ Bed are two effective ways to reduce downtime and make sure the patient remains comfortable.

Preventive Maintenance Schedule

Table 6-2. Preventive Maintenance Schedule

Function	Procedure
Trendelenburg	Make sure Trendelenburg and Reverse Trendelenburg operate correctly.
Lockout controls	Make sure each lockout operates correctly.
Brake and steer (option)	Make sure the brake and steer functions operate correctly. Replace the caster if necessary.
Individual brake caster	Make sure the brake operates correctly. Replace the caster if necessary.
Individual brake/steer caster	Make sure the brake and steer functions operate correctly. Replace the caster if necessary.
Caster tires	Examine the caster tires for cuts and wear. Replace the caster if necessary.
Siderail controls	Make sure the switches in the siderails operate correctly.
Siderail	Examine the siderail, and make sure it latches correctly and is not loose. Adjust if necessary.
Pivot points	Lubricate all pivot points on the bed.
Power cord and connector	Examine the power cord and connector for cuts, breaks, and pin retention. Replace if necessary.
Headboard and footboard	Examine the headboard and footboard for looseness and general appearance.
CPR release	Make sure the CPR release operates correctly (electric model only).
Battery	Replace the batteries every two years. Batteries are lead-acid type, dispose according to your local regulations.
Electrical	Do an electrical leakage test on the bed.
General appearance	Repair the paint where necessary. Examine the labels, and replace them if necessary.

Preventive Maintenance Checklist

Table 6-3. Preventive Maintenance Checklist

Date																						
																						Function
Hill-Rom	Manufacturer																					Trendelenburg
																						Lockout controls
																						Brake and steer (option)
																						Individual brake caster
																						Individual brake/steer caster
																						Caster tires
																						Siderail controls
																						Siderail
	Model Number																					Pivot points
																						Power cord and connector
																						Headboard and footboard
																						CPR release
																						Battery
																						Electrical
																						General appearance
	Serial Number																					
Total Cost for this Page																						**Labor Time:**
																						Repair Cost:
																						Inspected By:
																						Legend L=Lube C=Clean A=Adjust R=Repair or Replace O=Okay N=Not Applicable Remarks:

6.1 Basic Care™ Bed—Sleep Mode

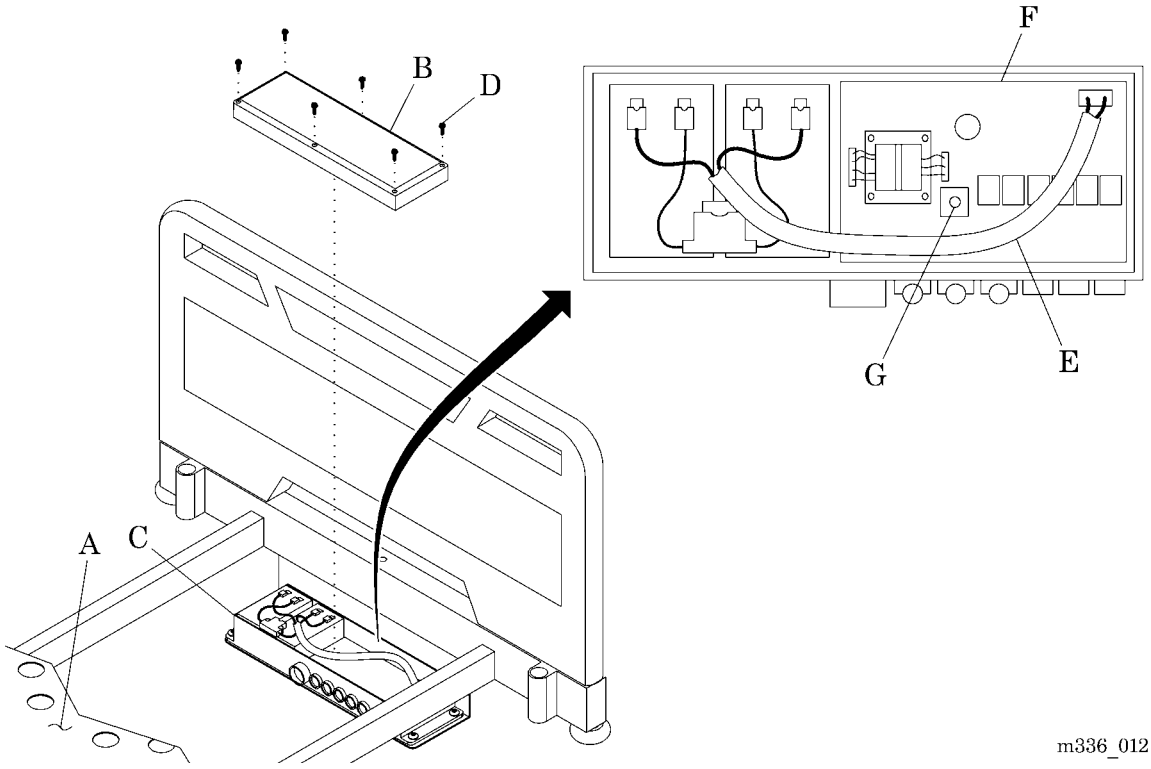
If the bed will be disconnected from its AC power source for an extended period of time, do this procedure to conserve battery power.

Tools required: Phillips head screwdriver

1. Raise the head section (A) to its full up position.

2. Lower the bed to have access to the cover (B) on the control box assembly (C) (see figure 6-1 on page 6-8).

Figure 6-1. Control Box



SHOCK HAZARD:
Disconnect the bed from its power source. Failure to do so could result in personal injury or equipment damage.

3. Disconnect the bed from its power source.

4. Remove the six screws (D) attaching the cover (B) to the control box (C).

5. Disconnect the battery cable (E) from the control board (F).

6. Make sure the indicator (G) turns off.

7. Connect the battery cable (E) to the control board (F).

NOTE:
The indicator should remain off.

8. Install the six screws (D) to attach the cover (B) to the control box (C).

6.2 CPR Cable Adjustment

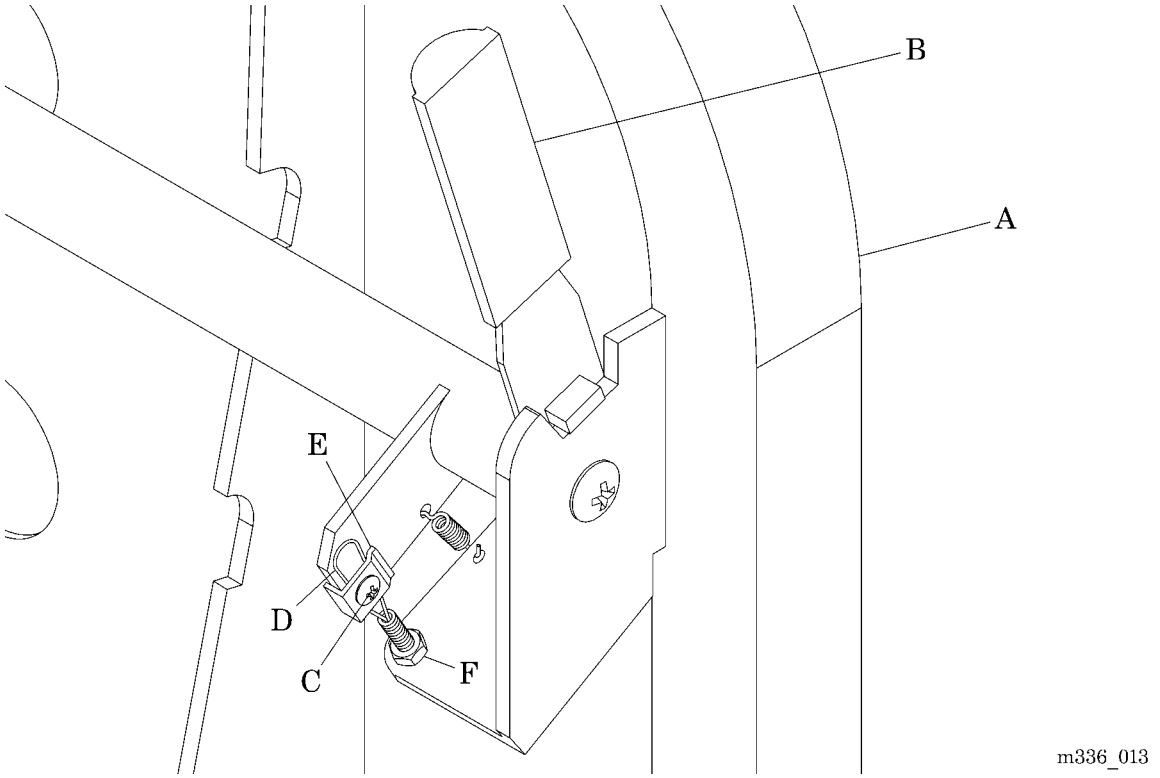
Tools required: Needle nose pliers
Small adjustable wrench

1. If the head section (A) is not lowering quickly enough when operating the CPR handle (B), do the following (see figure 6-2 on page 6-11):
   a. Loosen the screw (C) that is attaching the CPR wire (D) to the bracket (E).
   b. Pull a small part of the CPR wire (D) out of the cable (F).
   c. While holding the CPR wire (D) tightly, tighten the screw (C) to attach the wire (D) to the bracket (E).

NOTE:
While the CPR wire is being held tightly, the head section will be lowering slowly.

   d. Operate the CPR handle (B) to make sure the head section (A) lowers at the correct rate.
   e. If the head section (A) is not lowering quickly enough when the CPR handle (B) is operated, repeat step 1.
   f. If the head section (A) is lowering too quickly when the CPR handle (B) is operated, go to step 2.

Figure 6-2. CPR Adjustment



2. If the head section (A) is lowering too quickly when the CPR handle (B) is operated, do the following:
   a. Loosen the screw (C) that is attaching the CPR wire (D) to the bracket (E).
   b. Allow a small part of the CPR wire (D) to go into the cable (F).
   c. While holding the CPR wire (D) tightly, tighten the screw (C) to attach the wire (D) to the bracket (E).

NOTE:
While the CPR wire is being held tightly, the head section will be lowering slowly.

   d. Operate the CPR handle (B) to make sure the head section (A) lowers at the correct rate.
   e. If necessary repeat step 1 or step 2 until the head section (A) lowers at the correct speed.

3. Do the “Function Checks” on page 2-2.

NOTES:

Chapter 7
Accessories

Basic Care™ Bed Accessories

Table 7-1. Accessories List

Product Number	Description
P1445	IV pole
P846D48	Trapeze support, light neutral
P847B	Fracture frame (adapter set—3/4" pin)
P847C	Fracture frame adapter set—1/2" pin

7.1 IV Pole—P1445

Tools required: None

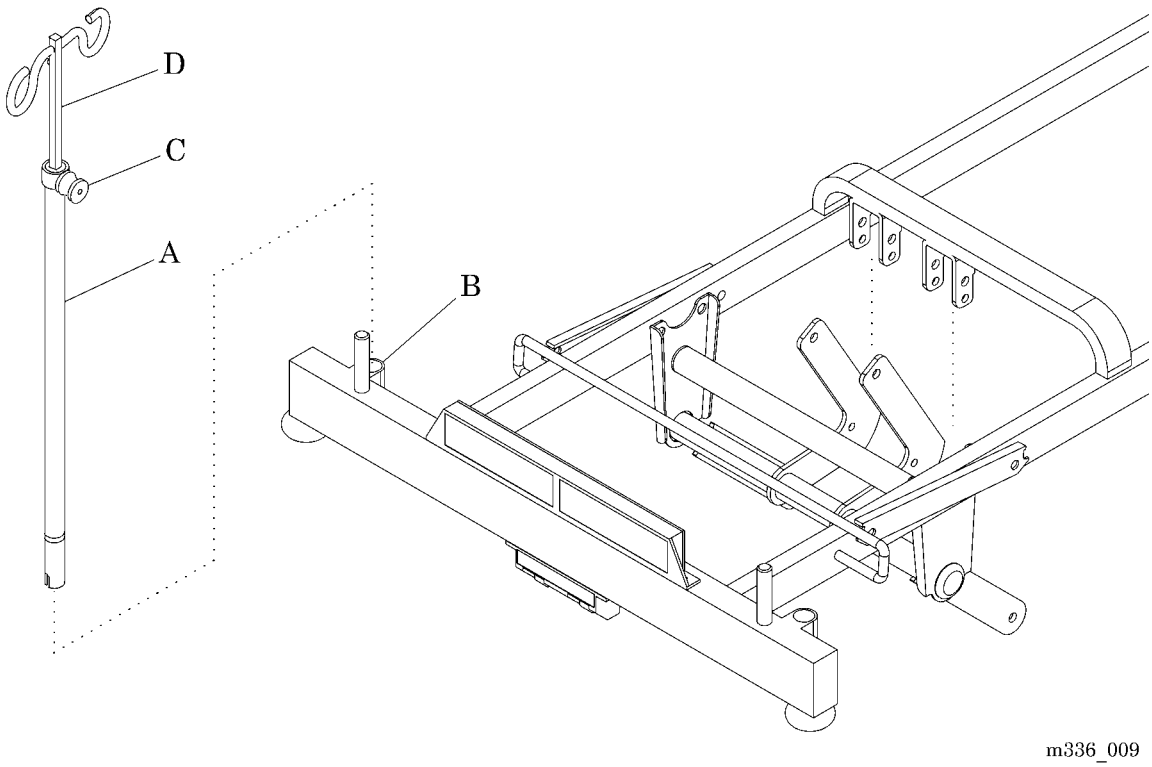
The two-sectioned, telescopic IV pole fits into any of the four socket locations on the bed: two at the head end, and two at the foot end.

Installation

WARNING:
Failure to install the IV pole correctly could allow it to fall, resulting in personal injury or equipment damage.

Put the IV pole (A) into the socket (B). Turn the lower section of the IV pole clockwise to lock it in place (see figure 7-1 on page 7-2).

Figure 7-1. IV Pole



Removal

To remove the IV pole (A), turn it counterclockwise, and lift it from the socket (B).

Adjustment

To change the height of the IV pole (A), pull the knob (C) out and adjust the upper section (D) of the IV pole (A) to the necessary height.

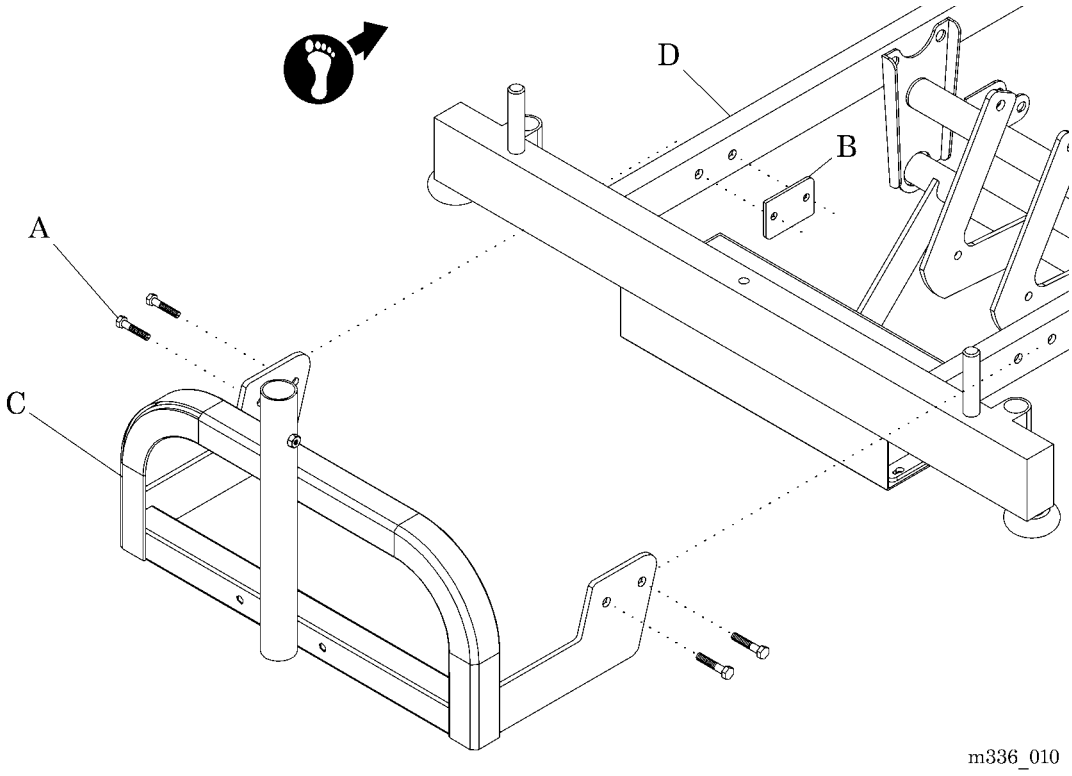
7.2 Trapeze Support—P846D48

Tools required: 3/8" socket
Drive ratchet
3/8" wrench

Installation

1. Install the four bolts (A) and two backing plates (B) to attach the trapeze support (C) and on the bed frame (D) (see figure 7-2 on page 7-4).

Figure 7-2. Trapeze Support



CAUTION:
Do not lower the bed frame while the trapeze support assembly is attached to the bed. Turn off the hilow function using the lockout on the foot end control panel. Otherwise, equipment damage could occur.

2. Lock out the hilow function.

Removal

1. Loosen and remove the four bolts (A) and the two backing plates (B).
2. Remove the trapeze support (A) from the bed frame (D).

7.3 Fracture Frame Adapter—P847B and P847C

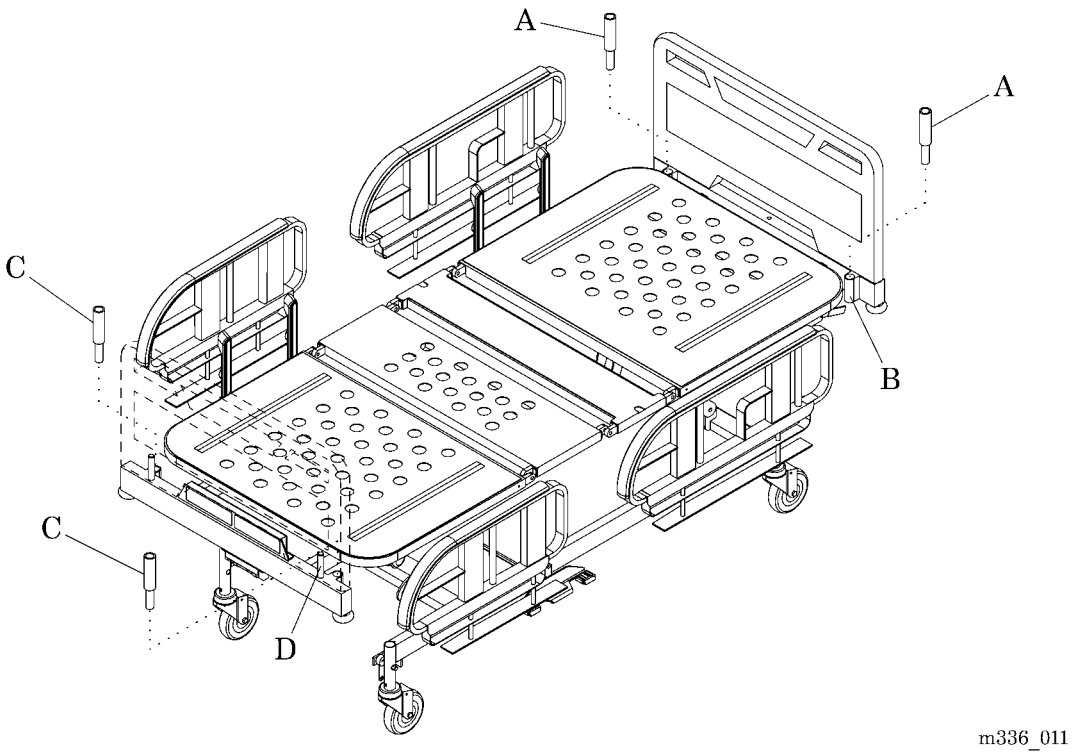
Tools required: None

Hill-Rom has two different fracture frame adapters available to handle most fracture frame equipment. The model P847B sockets have a 3/4" inside diameter, while the P847C sockets have a 1/2" inside diameter. Please specify which size is necessary when ordering.

Installation

1. Put the short adapter tubes (A) into the IV sockets (B) at the head end of the bed (see figure 7-3 on page 7-6).

Figure 7-3. Fracture Frame Adapter—P847B and P847C



2. Put the long adapter tubes (C) into the IV sockets (D) at the foot end of the bed.

Removal

1. Remove the short adapter tubes (A) from the IV sockets (B) at the head end of the bed by lifting the tubes (A) upward.

2. Remove the long adapter tubes (C) from the IV sockets (D) at the foot end of the bed by lifting the tubes (C) upward.

3. Do the “Function Checks” on page 2-2.

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